

**Epoxy Resins, Curing Agents,  
Compounds, and Modifiers**

**An Industrial Guide  
Second Edition**

**Ernest W. Flick**

**np**

**EPOXY RESINS,  
CURING AGENTS,  
COMPOUNDS,  
AND MODIFIERS**

**An Industrial Guide**

**Second Edition**

by

**Ernest W. Flick**



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**Park Ridge, New Jersey, U.S.A.**

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CIP

*To*  
*Evelyn and the late Donald Bartlett*  
*and*  
*Vella and Phil, Marilyn and Wid, Alden and Dottie*  
*and*  
*their families*

# Preface

This book contains condensed descriptions of more than 2800 up-to-date epoxy resins, curing agents, epoxy compounds and miscellaneous modifiers. It will be of value to technical and managerial personnel involved in the manufacture and use of the final products made from these various resins and curing agents.

Epoxy resins have experienced tremendous growth since their introduction in the 1950s. Rather than becoming a traditional commodity item, however, they are now becoming more of a specialty chemical. New molecules are regularly being developed, and existing ones constantly modified, to give improved performance in traditional applications, as well as new applications in high-technology areas. Future growth appears to lie in the evolution of new markets in the specialty performance areas.

The data in the book represent selections from 71 manufacturers' descriptive literature, made at no cost to, nor influence from, the makers or distributors of these materials. It is believed that all of the raw materials and finished products listed are currently available, which will be of interest to readers concerned with raw material discontinuances.

The book is divided into the following four sections:

- I. Epoxy Resins
- II. Curing Agents
- III. Epoxy Compounds
- IV. Miscellaneous Modifiers

Each raw material or product is described, as available, with typical assay and/or check point figures, and also a brief description summarizing important features or applications of the raw material or product.

Each raw material or product has been listed in the section which seems most applicable; however, the reader seeking a raw material or product should check each section which could possibly apply.

Two additional sections will also be useful to the reader—the Suppliers' Addresses, and a Trade Name Index. The table of contents is organized in such a way as to serve as a subject index.

My fullest appreciation is expressed to the companies and organizations who supplied the data included in this book.

October, 1992

Ernest W. Flick

## NOTICE

To the best of our knowledge the information in this publication is accurate; however the Publisher does not assume any responsibility for the accuracy or completeness of, or consequences arising from, such information. This Industrial Guide does not purport to contain detailed user instructions, and by its range and scope could not possibly do so. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the Publisher.

Epoxy raw materials can be toxic, and therefore due caution should always be exercised in the use of any potentially hazardous materials. Final determination of the suitability of any information or product for use contemplated by any user, and the manner of that use, is the sole responsibility of the user. We strongly recommend that users seek and adhere to a manufacturer's or supplier's current instructions for handling each material they use.

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# **Section I**

## **Epoxy Resins**

**CIBA-GEIGY CORP.: ARALDITE Liquid Epoxy Resins:**

**CY-225:**

Viscosity @ RT, cP: 12,000-20,000

W.P.E. (EEW): 189-200

Lower shrinkage accelerated GY 6010 type. Used for casting systems, electrically insulated components and high strength structural applications.

**GY 502:**

Viscosity @ RT, cP: 2,100-3,600

W.P.E. (EEW): 222-238

Color (Gardner) Max.: 3

GY 6010 in dibutyl phthalate - a non-reactive diluent.

Increases resiliency of cured product

**GY 506:**

Viscosity @ RT, cP: 500-700

W.P.E. (EEW): 172-185

Color (Gardner) Max.: 1

GY 6010 cut with RD-1 (BGE) - a mono functional reactive diluent. Good impregnation and maximum filler loading.

**GY 507:**

Viscosity @ RT, cP: 500-700

W.P.E. (EEW): 185-192

Color (Gardner) Max.: 7

GY 6010 cut with DY 023 (CGE) - a mono functional reactive diluent. Very low tendency to crystallize.

**GY 508:**

Viscosity @ RT, cP: 2,000-5,000

W.P.E. (EEW): 400-455

Color (Gardner) Max.: 5

BPA epoxy blended with a polyglycol di-epoxide to give increased flex, elongation and impact resistance. The higher EEW allows much lower hardener levels.

**GY 509:**

Viscosity @ RT, cP: 500-700

W.P.E. (EEW): 189-200

Color (Gardner): Max.: 2

GY 6010 cut with DY 027. Longer pot life, lower exotherm.

**GY 6004:**

Viscosity @ RT, cP: 5,000-6,500

W.P.E. (EEW): 178-196

Color (Gardner) Max.: 2

Slightly modified GY 6010. Medium viscosity, general purpose.

**GY 6005:**

Viscosity @ RT, cP: 7,500-9,500

W.P.E. (EEW): 182-196

Color (Gardner) Max.: 2

Slightly modified GY-6010. Medium viscosity, general purpose.

**CIBA-GEIGY CORP.: ARALDITE Liquid Epoxy Resins (Continued):****GY 6008:**

Viscosity @ RT, cP: 6,500-9,500  
W.P.E. (EEW): 177-188  
Color (Gardner) Max.: <1  
High purity, low viscosity, unmodified with very light color

**GY 6010:**

Viscosity @ RT, cP: 11,000-14,000  
W.P.E. (EEW): 182-192  
Color (Gardner) Max.: 1  
Basic liquid resin. General purpose.

**GY 2600:**

Viscosity @ RT, cP: 11,000-14,000  
W.P.E. (EEW): 186-190  
Color (Gardner) Max.: 1  
High purity GY 6010 with narrow range in epoxy value. Low hydrolyzable chlorine.

**GY 6020:**

Viscosity @ RT, cP: 16,000-20,000  
W.P.E. (EEW): 194-208  
Color (Gardner) Max.: 1  
Higher viscosity GY 6010, unmodified.

**GY 9513:**

Viscosity @ RT, cP: 500-700  
W.P.E. (EEW): 196-212  
Color (Gardner) Max.: 1  
GY 6010 cut with DY 025. Lower toxicity than typical low viscosity modified epoxy resins.

**GY 9613:**

Viscosity @ RT, cP: 2,100-2,500  
W.P.E. (EEW): 193-203  
Color (Gardner) Max.: 1  
Slightly higher viscosity GY 9513. Very light color.

**GY 9667:**

Viscosity @ RT, cP: 500-700  
W.P.E. (EEW): 196-213  
Color (Gardner) Max.: 3  
GY 9513 type-modified for less crystallization and improved elongation properties (higher).

**CY 9579:**

Viscosity @ RT, cP: 12,000-14,000  
W.P.E. (EEW): 182-192  
Color (Gardner) Max.: 2  
GY 6010-type epoxy designed for casting and filament winding.

**CIBA-GEIGY CORP.: Bisphenol F Epoxy Liquids:**

**GY 281:**

Viscosity @ RT, cP: 5,000-7,000

W.P.E. (EEW): 158-175

Color (Gardner) Max.: 3

Applications: Adhesives, tank linings, flooring.

Better chemical resistance especially to organic solvents than GY 6010. Low viscosity, good flexibility. FDA listed.

**GY 308:**

Viscosity @ RT, cP: 6,500-8,000

W.P.E. (EEW): 173-182

Color (Gardner) Max.: 3

Applications: Same as GY 281.

Non-crystallizing, good chemical/solvent resistance, low viscosity. Excellent mechanicals.

**PY 306:**

Viscosity @ RT, cP: 1,200-2,000

W.P.E. (EEW): 159-170

Color (Gardner) Max.: 1

Applications: Modifier of other resins for lower viscosity, higher solids coatings.

Bis F monomer reactive diluent. FDA listed. Very low viscosity.

**LY 9703:**

Viscosity @ RT, cP: 3,000-4,000

W.P.E. (EEW): 160-180

Color (Gardner) Max.: 3

Applications: Laminating resin.

Lower viscosity Bis F resin.

**XD 4955:**

Viscosity @ RT, cP: 4,500-6,500

W.P.E. (EEW): 172-185

Color (Gardner) Max.: 12

Applications: Civil engineering and coatings requiring higher solids and higher performance than GY 6010.

Low viscosity, lower cost modified Bis F resin.



**CIBA-GEIGY CORP.: Brominated Epoxy Liquids:****CY 8043:**

Viscosity @ RT, cP: 3,000-4,500  
W.P.E. (EEW): 217-238  
Color (Gardner) Max.: 5  
24-27% bromine. Low viscosity brominated epoxy for electrical, electronic casting, laminates, adhesives requiring flame retardance.

**LY 8047:**

Viscosity @ RT, cP: 650-950 (60C)  
W.P.E. (EEW): 222-224  
Color (Gardner) Max.: 12  
18-23% bromine. Semi-solid brominated epoxy for prepreg laminating. NEMA FR-5 grade. Versus standard laminates gives higher copper peel strength and temperature, good flame retardance.

**Special Solutions:****LZ 8001****A80 SP:**

Melting Point C: 1200-3400  
W.P.E. (EEW): 410-460  
Color (Gardner) Max.: 2  
18-21% bromine. 80% solids in acetone for printed wiring boards.

**LZ 8003****A80 SP:**

Melting Point C: 1500-3500  
W.P.E. (EEW): 425-460  
19-21% bromine. 80% solids in acetone-Celanese 2483 offset.

**EPN 1138****A85:**

Melting Point C: 500-1200  
W.P.E. (EEW): 176-181  
85% solids EPN 1138 in acetone.

**XB-4383:**

W.P.E. (EEW): 370  
Color (Gardner) Max.: 5  
Brominated epoxy resin solution with a viscosity of 1,500-2,500 cPs @ 25C.

**CIBA-GEIGY CORP.: Cycloaliphatic Epoxy Liquids:**

**CY 179:**

Viscosity @ R.T., cP: 350-450

W.P.E. (EEW): 131-143

Color (Gardner) Max.: 1

Alicyclic diepoxy carboxylate, low viscosity liquid epoxy for high temperature outdoor electrical and casting applications.

**CY 184:**

Viscosity @ R.T., cP: 750-1,000

W.P.E. (EEW): 158-182

Color (Gardner) Max.: 3

Diglycidylester of hexahydrophthalic anhydride for outdoor applications, castings, medium Tg, tough material.

**CY 192-1:**

Viscosity @ R.T., cP: 450-800

W.P.E. (EEW): 154-169

Color (Gardner) Max.: 2

Diglycidylester of tetrahydrophthalic anhydride for coil impregnation and VPI systems.

**CY 9729:**

Viscosity @ R.T., cP: 400-500

W.P.E. (EEW): 178-192

Toughened CY 179, two phase system, good thermal shock resistance, HDT of 132C.

**CY 9739:**

Viscosity @ R.T., cP: 450-575

W.P.E. (EEW): 206-212

Toughened CY 179, two phase system, better thermal shock resistance. HDT of 113C.

**CIBA-GEIGY CORP.: Electronic Grade Materials:**

**ARATRONIC 5001:**

Hydrolyzable chlorine (ppm): 33  
Viscosity 25C (cps): 12,500-15,000  
High purity Bis A liquid based liquid epoxy

**ARATRONIC 5040:**

Hydrolyzable chlorine (ppm): 35  
Viscosity 25C (cps): 5,000-7,000  
High purity Bis F based epoxy

**ARATRONIC 5046:**

Hydrolyzable chlorine (ppm): 50  
Viscosity 25C (cps): 1,400  
High purity Bis F monomer

**ARATRONIC 5057:**

Hydrolyzable chlorine (ppm): 50  
Viscosity 25C (cps): 30,000-50,000  
High purity epoxy phenol novolac resin

**ARATRONIC 5070:**

Hydrolyzable chlorine (ppm): 1,000  
Viscosity 25C (cps): 550-850  
High purity, low viscosity high functionality amine based resin

**ARATRONIC 5210:**

Viscosity 25C (cps): Solid  
High purity aromatic amine hardener

**ARATRONIC 5240:**

Viscosity 25C (cps): Solid  
High purity latent polyamide hardener

**ARATRONIC 5320:**

Hydrolyzable chlorine (ppm): 500  
Viscosity 25C (cps): 15-24  
High di-epoxide reactive diluent

**CIBA-GEIGY CORP.: Epoxy Solutions:**

**GZ 540 X-90:**

Viscosity Bubble @ RT: Z4-Z7  
W.P.E. (EEW): 233-278  
Color (Gardner) Max.: 4  
Resin Type: 6040-90% solids in xylene  
2-package for maintenance and architectural coatings.

**GZ 465 A-80:**

Viscosity Bubble @ RT: Z3-Z5  
W.P.E. (EEW): 455-500  
Color (Gardner) Max.: 3  
Resin Type: 7065 - 80% solids in acetone  
For prepreg used in rigid and multilayer printed circuit boards (MIL P-18177 type GEE, MIL P-13949 Type GE) NEMA G-10.

**GZ 471 X-75:**

Viscosity Bubble @ RT: Z3-Z5  
W.P.E. (EEW): 450-530  
Color (Gardner) Max.: 3  
Resin Type: 7071 - 75% solids in xylene  
High performance 2-package system.

**GZ 571 X-80:**

Viscosity Bubble @ RT: Z5-Z7  
W.P.E. (EEW): 450-530  
Color (Gardner) Max.: 3  
Resin Type: 7071 - 80% solids in xylene  
Comments: Same as for 471 X-75.

**GZ 571 KX-75:**

Viscosity Bubble @ RT: Z1-Z4  
W.P.E. (EEW): 450-530  
Color (Gardner) Max.: 3  
Resin Type: 7071 - 75% solids in MIBK (16.25%) and xylene (8.75%)  
Comments: Same as for 471 X-75.

**GZ 571 T-75:**

Viscosity Bubble @ RT: Z2-Z4  
W.P.E. (EEW): 450-530  
Color (Gardner) Max.: 3  
Resin Type: 7071 - 75% solids in toluene  
Comments: Same as for 471 X-75.

**GZ 7071 PM-75:**

Viscosity Bubble @ RT: Z4-Z6  
W.P.E. (EEW): 450-575  
Color (Gardner) Max.: 3  
Resin Type: 7071 - 75% solids in Arcosolv M (monopropylene glycol monoethyl ether)

**CIBA-GEIGY CORP.: Epoxy Solutions (Continued):****GZ 7071 T-65:**

W.P.E. (EEW): 450-530

Color (Gardner) Max.: 3

Resin Type: 7071-65% solids in toluene

**GZ 7071 N-80:**

Viscosity Bubble @ RT: Z3-Z5

W.P.E. (EEW): 450-550

Color (Gardner) Max.: 4

Resin Type: 7071-80% solids in MEK.

**GZ 597 KT-55:**

Viscosity Bubble @ RT: Y-Z3

W.P.E. (EEW): 1666-2000

Color (Gardner) Max.: 4

Resin Type: 7097-55% solids in MIBK and 22.5% in toluene

Much higher flexibility and toughness than 7011 type solutions. For heat-cured industrial coatings in combination with urea, melamine and/or phenolic resins.

**GZ 7097 PM-55:**

Viscosity Bubble @ RT: Z3-Z6 typical

W.P.E. (EEW): 1667-2000

Color (Gardner) Max.: 3

Resin Type: 7097-55% solids in Arcosolv PM

**GZ 7097 TPM 55:**

Viscosity Bubble @ RT: Z1-Z4 typical

W.P.E. (EEW): 1667-2000

Color (Gardner) Max.: 3

Resin Type: 7097-55% solids in 22.5% toluene and 22.5%

Dowanol PM.

**GZ 6097 PM-55:**

Viscosity Bubble @ RT: Z4-Z7

W.P.E. (EEW): 2000-2500

Color (Gardner) Max.: 3

Resin Type: 6097-55% solids in Arcosolv PM.

**GZ 6097 PMA-50:**

Viscosity Bubble @ RT: Y-Z2

W.P.E. (EEW): 2000-2500

Color (Gardner) Max.: 3

Resin Type: 6097-50% solids in Arcosolv PM acetate  
(monopropylene glycol monoethyl ether acetate)**GZ 9711:**

Viscosity Bubble @ RT: Z4-Z6

W.P.E. (EEW): 2250-3250

Color (Gardner) Max.: 4

Resin Type: Higher molecular weight 6097 in Arcosolv PM acetate.

**CIBA-GEIGY CORP.: Epoxy Solutions (Continued):**

**GZ 488 PMA-32:**

Viscosity Bubble @ RT: Z-Z2

W.P.E. (EEW): 3570 min..

Color (Gardner) Max.: 3

Resin Type: 32% solids in Arcosolv PM acetate.

2x the molecular weight of 7097.

Outstanding adhesion, excellent flexibility and toughness.

**GZ 488 N-40:**

Viscosity Bubble @ RT: U-Y

W.P.E. (EEW): 3570 min.

Color (Gardner) Max.: 5

Resin Type: Same as GZ 488 PMA-32 only. 40% solids in MEK.

**CIBA-GEIGY CORP.: Multifunctional Epoxy Liquids:****XU MY 252:**

Viscosity @ RT, cP: 900-1500 (52C, 125C)

W.P.E. (EEW): 185-196

Color (Gardner) Max.: 3

Chemically modified Bis A epoxy; functionality of 2.3. Would probably give better heat and chemical resistance in post bake or heat cured coatings versus EPN 1139. At RT cure EPN 1139 would be slightly better overall. See XU GT 259 for solid version of XU 252.

**MY 0500:**

Viscosity @ RT, cP: 2,000-5,000

W.P.E. (EEW): 105-115

Color (Gardner) Max.: Dark

Tri-functional low viscosity epoxy resin based on para amino phenol for rapid cure adhesives, laminates, etc., having exceptional high heat deflection temperatures.

**MY 0510:**

Viscosity @ RT, cP: 550-850

W.P.E. (EEW): 95-107

Color (Gardner) Max.: Dark

High purity MY 0500. Improved stability.

**MY 720:**

Viscosity @ RT, cP: 9,000-17,000

W.P.E. (EEW): 118-133

Color (Gardner) Max.: Dark

Tetra-functional liquid epoxy based on methylene dianiline for high performance composite, adhesive, laminate and high energy radiation resistant components. Excellent high temperature, chemical and radiation resistance.

**MY 9655:**

Viscosity @ RT, cP: 7,000-9,000

W.P.E. (EEW): 118-133

Color (Gardner) Max.: Dark

Narrow viscosity MY 720.

**MY 9612:**

Viscosity @ RT, cP: 10,000-12,000

W.P.E. (EEW): 118-133

Color (Gardner): Dark

Narrow viscosity MY 720.

**MY 9512:**

Viscosity @ RT, cP: 11,000-13,000

W.P.E. (EEW): 118-133

Color (Gardner): Dark

Narrow viscosity MY 720.

**CIBA-GEIGY CORP.: Multifunctional Epoxy Liquids (Continued):**

**MY 9634:**

Viscosity @ RT, cP: 13,000-15,000  
W.P.E. (EEW): 118-133  
Color (Gardner) Max.: Dark  
Narrow viscosity MY 720.

**MY 9663:**

Viscosity @ RT, cP: 17,000-19,000  
W.P.E. (EEW): 118-133  
Color (Gardner) Max.: Dark  
Narrow viscosity MY 720.

**MY 721:**

Viscosity @ RT, cP: 3,000-6,000  
W.P.E. (EEW): 110-115  
Color (Gardner) Max.: Dark  
Lowest viscosity, tetra-functional epoxy. Same chemistry  
as MY 720.



**CIBA-GEIGY CORP.: Solid Epoxy Resins:****GT 6060:**

Melting Point C: 60-75

W.P.E. (EEW): 385-500

Color (Gardner) Max.: 4

Resin Type: "1/2"

Unmodified Bis A epoxy for castings, electrical encapsulating, laminating and adhesive applications.

**GT 7071:**

Melting Point C: 65-75

W.P.E. (EEW): 450-530

Color (Gardner) Max.: 2

Resin Type: "1"

Unmodified Bis A epoxy for marine/maintenance and flooring.

Base resin used in 471 and 571 resin solution cuts.

**GT 9516:**

Melting Point C: 69-78

W.P.E. (EEW): 476-526

Color (Gardner) Max.: 2

Resin Type: "1"

More blocking (sintering) resistant GT 7071.

**GT 7072:**

Melting Point C: 75-85

W.P.E. (EEW): 550-700

Color (Gardner) Max.: 2

Resin Type: "2"

Unmodified Bis A epoxy. Used in trade sales paint, concrete and interior pipe coatings.

**XU 248:**

Melting Point C: 75-85

W.P.E. (EEW): 505-565

Color (Gardner) Max.: 1

Resin Type: "2"

Unmodified Bis A epoxy. More uniform, higher flow GT 7072-type.

**GT 7013:**

Melting Point C: 84-89

W.P.E. (EEW): 650-725

Color (Gardner) Max.: 1

Resin Type: "3"

Unmodified Bis A epoxy. Light colored, high flow resin for powder coatings.

**CIBA-GEIGY CORP.: Solid Epoxy Resins (Continued):**

**GT 9013:**

Melting Point C: 83-90

W.P.E. (EEW): 650-725

Color (Gardner) Max.: 1

Resin Type: "3"

Unmodified Bis A epoxy. Better flow GT 7013 for powder coatings.

**XB 4412:**

Melting Point C: 93

W.P.E. (EEW): 670-710

Color (Gardner) Max.: 1

Resin Type: "2 1/2"

Exceptional flow and non-sintering.

**GT 7220:**

Melting Point C: 85-92

W.P.E. (EEW): 518-546

Color (Gardner) Max.: 2

Resin Type: "3+"

Modified Bis A epoxy. Fast reacting for higher chemical resistant coatings.

**GT 7014:**

Melting Point C: 86-96

W.P.E. (EEW): 700-750

Color (Gardner) Max.: 1

Resin Type: "3+"

Unmodified Bis A epoxy. Light colored, medium flow resin for powder coatings.

**GT 9496:**

Melting Point C: 87-95

W.P.E. (EEW): 740-835

Resin Type: "3+"

Modified Bis A epoxy GT 7014 with 5% of a light stable, aging resistant acrylic resin flow control agent.

**GT 7226:**

Melting Point C: 85-97

W.P.E. (EEW): 795-895

Color (Gardner) Max.: 2

Resin Type: "3+"

Modified Bis A epoxy GT 7014 with 10% Acronal 4F - flow control agent.

**CIBA-GEIGY CORP.: Solid Epoxy Resins (Continued):****GT 6084:**

Melting Point C: 95-105

W.P.E. (EEW): 875-1025

Color (Gardner) Max.: 1

Resin Type: "4"

Unmodified Bis A epoxy for esterification reactions.

**XU GT 273:**

Melting Point C: 95-105

W.P.E. (EEW): 900-925

Color (Gardner) Max.: 2

Resin Type: "4"

Unmodified Bis A epoxy. Higher flow "4" type for powder coatings.

**GT 9545:**

W.P.E. (EEW): 875-1025

Color (Gardner) Max.: 2

Resin Type: "4"

Very high purity (powder grade) GT 6084 resin.

**GT 7074:**

Melting Point C: 97-100

W.P.E. (EEW): 935-1175

Color (Gardner) Max.: 2

Resin Type: "4+"

Unmodified Bis A epoxy. Medium melt viscosity epoxy for thick films. Outstanding adhesion; excellent impact resistance.

**GT 7255:**

Melting Point C: 106-113

W.P.E. (EEW): 775-855

Color (Gardner) Max.: 1

Resin Type: "7"

Modified Bis A epoxy. Higher molecular weight GT 7220 type.

**XU 243:**

Melting Point C: 110-120

W.P.E. (EEW): 1205-1408

Color (Gardner) Max.: 3

Resin Type: "6"

Unmodified Bis A epoxy resin. Resin type between GT 7074 and GT 7097

**CIBA-GEIGY CORP.: Solid Epoxy Resins (Continued):**

**GT 7097:**

Melting Point C: 113-123

W.P.G. (EEW): 1667-2000

Color (Gardner) Max.: 3

Resin Type: "7"

Unmodified Bis A epoxy. High melt viscosity epoxy for high quality industrial and thick film powder coatings.

**GT 6097:**

Melting Point C: 125-135

W.P.E. (EEW): 2000-2500

Color (Gardner) Max.: 3

Resin Type: "7"

Unmodified Bis A epoxy. Higher melt viscosity GT 7097 type.

**GT 7099:**

Melting Point C: 145-155

W.P.E. (EEW): 2800-3300

Color (Gardner) Max.: 3

Resin Type: "9"

Unmodified Bis A epoxy. Highest molecular weight solid epoxy resin.

**GT 6099:**

Melting Point C: 145-155

W.P.E (EEW): 2500-2800

Color (Gardner) Max.: 3

Resin Type: "9"

Lower molecular weight GT 7099.

**CIBA-GEIGY CORP.: Special Resins:****XU AY 238:**

Viscosity @ R.T., cP: 2,000-4,000

W.P.E. (EEW): 130-137

Applications: Adhesives

ARACAST epoxy based on hydantoin heterocyclic nitrogen containing five membered ring structure. Resistance to ultraviolet (UV) light and heat. Outstanding adhesion properties.

**XP 4955-1:**

Viscosity @ R.T., cP: 5500-7500

W.P.E. (EEW): 172-185

Color (Gardner) Max.: 3

Applications: Civil Engineering, Maintenance &amp; Marine Coatings

Excellent property balance.

**XU GY 358:**

Viscosity @ R.T., cP: 6000-10,000

W.P.E. (EEW): 160-170

Applications: Maintenance & Marine Coatings, Automotive refin-  
ish.

New weatherable epoxy.

**XB 4122:**

Viscosity @ R.T., cP: 1,000 typical

W.P.E. (EEW): 350 typical

Applications: High solids coatings requiring toughness,  
adhesion, corrosion & abrasion resistance.

New very low viscosity, unmodified, flexible epoxy with  
excellent workability & toughness

**PY 307:**

Viscosity @ R.T., cP: 30,000-50,000

W.P.E. (EEW): 173-185

Color (Gardner) Max.: 6

Applications: Epoxy phenol novolac for high performance  
(chemical, solvent and heat) coatings and tank linings.

Epoxy functionality of 2.4. EPN 1139 type with much lower  
viscosity. FDA listed.

**EPN 1138:**

Viscosity @ R.T., cP: 35,000-70,000 (52C-125F)

W.P.E. (EEW): 176-181

Color (Gardner) Max.: 2

Applications: Epoxy phenol novolac for higher heat and  
chemical resistance than PY 307 and EPN 1139.

Epoxy functionality of 3.6. Much higher viscosity than  
EPN 1139.

**CIBA-GEIGY CORP.: Special Resins (Continued):**

**EPN 1139:**

Viscosity @ R.T., cP: 1,100-1,700 (52C-125F)

W.P.E. (EEW): 172-179

Color (Gardner) Max.: 3

Applications: Tank linings, high performance coatings.

Epoxy functionality of 2.2 viscosity between PY 307 and

EPN 1138.

**MATRIMID 5292A:**

Viscosity: 150-154C (Melting Point)

Applications: Advanced composites, high temperature, adhesives, laminating, casting, filament winding.

Bismaleimide resin.

**MATRIMID 5292B:**

Viscosity: 12,000-20,000

Applications: Advanced composites, high temperature, adhesives, laminating, casting, filament winding.

O,O'-Diallyl bisphenol A hardener.

**MATRIMID 5292 System:**

Applications: Advanced composites, high temperature, adhesives, laminating, casting, filament winding.

Optimum levels of 5292A/5292B. Outstanding performance and toughness.

**CIBA-GEIGY CORP.: Specialty Solid Epoxy:****ECN 1235:**

Melting Point C: 34-42

W.P.E. (EEW): 200-227

Functionality: 1.7

Epoxy cresol novolac for high temperature adhesives, coatings, electrical and laminating product areas.

**LT 8052:**

Melting Point C: 37-47

W.P.E. (EEW): 284-352

Functionality: 2.0

36-40% brominated flame retardant epoxy for impregnating, casting where non-burning properties are desired.

**LT 8049:**

Melting Point C: 45-60

W.P.E. (EEW): 322-417

Functionality: 2.0

47-50% brominated flame retardant epoxy resin.

**ECN 1273:**

Melting Point C: 68-78

W.P.E. (EEW): 217-233

Functionality: 3.8

Higher functionality, higher melting ECN 1235 for higher heat resistance.

**MT 0163:**

Melting Point C: 55-95

W.P.E. (EEW): 179-220

Functionality: 4.0

Tetra-functional-phenol-based-epoxy resin for exceptional strength at elevated temperatures, as well as, improved thermal aging characteristics for molding, laminating and adhesives.

**ECN 1280:**

Melting Point C: 75-85

W.P.E. (EEW): 213-233

Functionality: 4.1

Slightly higher melting, higher functionality ECN 1273 type.

**ECN 1282:**

Melting Point C: 75-85

W.P.E. (EEW): 213-233

Functionality: 4.1

Higher purity ECN 1280

**CIBA-GEIGY CORP.: Specialty Solid Epoxy (Continued):**

**XU GT 259:**

Melting Point C: 81 avg.

W.P.E. (EEW): 384-476

Functionality: 2.3

Chemically modified Bis A epoxy for higher heat and chemical resistant coatings. (See XU 252 for a liquid solvent-free version of XU 259).

**PT 810:**

Melting Point C: 76-112

W.P.E. (EEW): 100-108

Functionality: 3.0

Unmodified, very high performance epoxy with color stability at high temperatures and good weathering characteristics. Good thermal, adhesive and chemical resistance.

**ECN 1299:**

Melting Point C: 85-100

W.P.E. (EEW): 217-244

Functionality: 4.4

Higher functionality and melting ECN 1280.

**ECN 9699:**

Melting Point C: 85-100

W.P.E. (EEW): 213-233

Functionality: 4.4

ECN 1299 for powder coatings.



**CVC SPECIALTY CHEMICALS, INC.: Specialty Epoxy Product Line:**

**EPALLOY 8230:**

Bis Phenol F Epoxy Resin  
Low viscosity (4-5000cps) non crystallizing resin with excellent reactivity.

**EPALLOY 8250:**

Phenol Epoxy Novolac Resin  
Low viscosity Novolac (25-30,000 cps @ RT) with 2.6 functionality

**EPALLOY 8330:**

Phenol Epoxy Novolac Resin  
Standard epoxy Novolac (30-50,000 cps @ 52C) with 3.6 functionality

**ERISYS RDGE:**

Resorcinol Epoxy Resin  
Very low viscosity (350 cps @ RT), high reactivity resin

**ERISYS RDGE/H:**

Resorcinol Epoxy Resin  
Highest purity, lowest viscosity resorcinol resin

**ERISYS RF50:**

Modified Resorcinol Epoxy Resin  
Non crystallizing medium viscosity (700-800 cps) resorcinol epoxy resin system

**EPALLOY 7138:**

Novolac modified Bisphenol A Epoxy Resin  
Low viscosity non crystallizing modified Bis A Epoxy Resin (6000-7000 cps)

**EPALLOY 7300 Series:**

Advanced Bisphenol A Epoxy Resin Solutions  
Solution Resins in EB and PMA ranging from 500 to 3000 EEW.  
Specific viscosities and solids content will vary.

**ERISYS EMR95:**

CTBN Modified Bis A Epoxy Resin  
Solid Rubber modified Bisphenol A Epoxy Resin for improved tack and toughness in adhesives and composites.

EPALLOY is a registered trademark of CL Industries, Inc.  
ERISYS is a registered trademark of CVC Specialty Chemicals, Inc.

**DOW CHEMICAL U.S.A.: D.E.R. Liquid Epoxy Resins: Bisphenol A-Type Resins:**

**D.E.R. 317:**

Epoxide Equivalent Weight: 192-203  
Viscosity Centipoises: 16,000-25,000  
Color Gardner Max: 5  
Lbs/Gal: 9.7

High viscosity, fast reacting, low molecular weight epoxy resin used in coating and adhesive applications.

**D.E.R. 330:**

Epoxide Equivalent Weight: 177-188  
Viscosity Centipoises: 7000-10,000  
Color Gardner Max: 3  
Lbs/Gal: 9.7

Lowest viscosity standard liquid bisphenol A type resin used in coating, electrical laminate, potting, and adhesive applications.

**D.E.R. 331:**

Epoxide Equivalent Weight: 182-192  
Viscosity Centipoises: 11,000-14,000  
Color Gardner Max: 1  
Lbs/Gal: 9.7

Widely used, general purpose epoxy resin for coating, civil engineering, potting, adhesive, and laminate applications.

**D.E.R. 332:**

Epoxide Equivalent Weight: 172-176  
Viscosity Centipoises: 4000-6000  
Color Gardner Max: 1  
Lbs/Gal: 9.7

High purity, low molecular weight resin for applications requiring good color, low viscosity, and improved elevated temperature performance. Used extensively in wet winding applications.

**D.E.R. 337:**

Epoxide Equivalent Weight: 230-250  
Viscosity Centipoises: 400-800  
Color Gardner Max: 3  
Lbs/Gal: 9.7

Intermediate molecular weight semi-solid epoxy resin used in coating and adhesive applications.

**D.E.R. 383:**

Epoxide Equivalent Weight: 176-186  
Viscosity Centipoises: 9000-11,000  
Color Gardner Max: 2  
Lbs/Gal: 9.7

Liquid resin designed to provide reduced viscosity and extended pot life while maintaining other properties essentially equivalent to D.E.R. 331. Has utility in applications such as coating, filament winding, potting, and encapsulation.

**DOW CHEMICAL U.S.A.: D.E.R. Liquid Epoxy Resins: Precatalyzed Resin:****D.E.R. 333:**

Epoxy Equivalent Weight: 193-203

Viscosity Centipoises: 2300-7000

Color Gardner Max: 3

Volatiles Wt %: 3-5

Lbs/Gal: 9.6

Flash Point F: 136

Precatalyzed liquid epoxy resin used for the manufacture of custom-made epoxy resins.

**Diluted Resins:****D.E.R. 324:**

Epoxy Equivalent Weight: 197-206

Viscosity Centipoises: 600-800

Color Gardner Max: 3

Lbs/Gal: 9.3

Flash Point F: 350

Diluted resin designed for use in coating, adhesive, civil engineering, and construction applications.

**D.E.R. 325:**

Epoxy Equivalent Weight: 185-201

Viscosity Centipoises: 1600-2800

Color Gardner Max: 2

Lbs/Gal: 9.5

Flash Point F: 375

Medium viscosity diluted resin designed for use in civil engineering and decoupage applications.

**Polyglycol Type Resins:****D.E.R. 732:**

Epoxy Equivalent Weight: 305-335

Viscosity Centipoises: 55-100

Color Gardner Max: 1

Lbs/Gal: 8.9

Flash Point F: 405

Polyglycol di-epoxide which imparts flexibility, elongation, and improved impact when blended with conventional resins.

**D.E.R. 736:**

Epoxy Equivalent Weight: 175-205

Viscosity Centipoises: 30-60

Color Gardner Max: 1

Lbs/Gal: 9.5

Flash Point F: 338

Shorter chain polyglycol di-epoxide than D.E.R. 732. Gives less flexibility, impact and elongation than D.E.R. 732 with some improvement in heat distortion temperature and chemical resistance.

**DOW CHEMICAL U.S.A.: DOW Liquid Epoxy Resins:**

**D.E.R. 317 Epoxy Resin:**

A high viscosity, fast reacting (20% faster than D.E.R. 331) liquid epoxy resin designed for adhesive applications requiring quick gelling with amine curing agents.

**D.E.R. 324 Epoxy Resin:**

A formulated blend of D.E.R. 331 and a C12-C14 aliphatic glycidyl ether to produce a low viscosity product. The product has utility in filled formulations for flooring compounds, grouts, adhesives, decoupage coatings, and high solids coatings. Blend ratio is 83/17 D.E.R. 331 to diluent.

**D.E.R. 325 Epoxy Resin:**

A medium viscosity resin blend of 92/8 ratio of D.E.R. 331 to C12-C14 aliphatic glycidyl ether. Used in same applications as D.E.R. 324.

**D.E.R. 330 Epoxy Resin:**

A low epoxide equivalent weight liquid resin processed to give very low viscosity without the use of a reactive diluent.

**D.E.R. 331 Epoxy Resin:**

A general purpose, widely used liquid resin. It is recognized as a standard from which variations have been developed.

**D.E.R. 332 Epoxy Resin:**

The uniqueness of D.E.R. 332 epoxy resin is reflected in its maximum epoxide equivalent weight of 178. Because of its high purity and lack of polymer fractions, D.E.R. 332 resin provides uniform performance and exceptionally low viscosity and color. Under some conditions of cure, it gives improved elevated temperature properties.

**D.E.R. 333, 343 and 345 Epoxy Resins:**

Precatalyzed liquid resins are designed to have selective reactivity with bisphenol A to permit the practical manufacture of typical solid resins used in the coatings industry. Resins prepared from the precatalyzed resins have excellent stability, color, pigment wetting, and other physical and chemical properties typical of the best solid epoxy resins commercially available. D.E.R. 333, 343 and 345 resins offer the resin chemist an opportunity to develop specific resins for specific end uses.

**D.E.R. 337 Epoxy Resin:**

An intermediate epoxide equivalent weight bisphenol A semi-solid epoxy resin. Used in adhesives and coatings or as a modifier for other epoxy resins to improve impact strength, extensibility, and adhesion.

**D.E.R. 362 Epoxy Resin:**

A medium viscosity liquid epoxy resin based on bisphenol A which possesses the unique characteristic of crystallization resistance. D.E.R. 362 contains no solvents, no diluents, and is suited for applications ranging from coatings to composites.

**D.E.R. 383 Epoxy Resin:**

A liquid epoxy resin designed to provide reduced viscosity and extended pot life while maintaining properties essentially equivalent to those of D.E.R. 331 epoxy resin.

**DOW CHEMICAL U.S.A.: DOW Liquid Epoxy Resins (Continued):****D.E.R. 332:**

Epoxide Equiv. Wt.: 172-176  
Viscosity Range (cps @ 25C): 4,000-6,000  
Color, Max (Gardner): 75  
Flash Point, (F): 485  
Specific Gravity, 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**D.E.R. 362:**

Epoxide Equiv. Wt.: 185-205  
Viscosity Range (cps @ 25C): 4,500-6,500  
Color, Max (Gardner): 1  
Flash Point, (F): 480  
Specific Gravity, 25/25C: 1.14  
Weight (Lbs/Gal) @ 25C: 9.5

**D.E.R. 330:**

Epoxide Equiv. Wt.: 176-185  
Viscosity Range (cps @ 25C): 7,000-10,000  
Color, Max (Gardner): 125  
Flash Point, (F): 485  
Specific Gravity, 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**D.E.R. 383:**

Epoxide Equiv. Wt.: 176-183  
Viscosity Range (cps @ 25C): 9,000-10,500  
Color, Max (Gardner): 125  
Flash Point, (F): 485  
Specific Gravity, 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**D.E.R. 331:**

Epoxide Equiv. Wt.: 182-192  
Viscosity Range (cps @ 25C): 11,000-14,000  
Color, Max (Gardner): 125  
Flash Point, (F): 485  
Specific Gravity, 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**D.E.R. 317:**

Epoxide Equiv. Wt.: 192-203  
Viscosity Range (cps @ 25C): 16,000-25,000  
Color, Max (Gardner): 5  
Flash Point, (F): 485  
Specific Gravity 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**D.E.R. 337:**

Epoxide Equiv. Wt.: 230-250  
Viscosity Range (cps @ 25C): 400-800  
Color, Max (Gardner): 3  
Flash Point, (F): 485  
Specific Gravity, 25/25C: 1.16  
Weight (Lbs/Gal) @ 25C: 9.7

**DOW CHEMICAL U.S.A.: DOW Liquid Epoxy Resins Containing a  
Reactive Diluent:**

**D.E.R. 324:**

Epoxide Equiv. Wt.: 197-206  
Viscosity Range (cps @ 25C): 600-800  
Color, Max (Gardner): 3  
Flash Point, (F): 350  
Specific Gravity, 25/25C: 1.11  
Weight (Lbs/Gal) @ 25C: 9.3

**D.E.R. 325:**

Epoxide Equiv. Wt.: 185-206  
Viscosity Range (cps @ 25C): 850-2,800  
Color, Max (Gardner): 2  
Flash Point, (F): 375  
Specific Gravity, 25/25C: 1.14  
Weight (Lbs/Gal) @ 25C: 9.5

**DOW Precatalyzed Liquid Epoxy Resins:**

**D.E.R. 333:**

Epoxide Equiv. Wt.: 192-197  
Viscosity Range (cps @ 25C): 3,000-7,000  
Color, Max (Gardner): 3  
Flash Point, (F): 136  
Specific Gravity, 25/25C: 1.15  
Weight (Lbs/Gal) @ 25C: 9.6

**D.E.R. 343:**

Epoxide Equiv. Wt.: 193-203  
Viscosity Range (cps @ 25C): 3,000-7,000  
Color, Max (Gardner): 3  
Flash Point, (F): 136  
Specific Gravity, 25/25C: 1.15  
Weight (Lbs/Gal) @ 25C: 9.6

**D.E.R. 345:**

Epoxide Equiv. Wt.: 193-203  
Viscosity Range (cps @ 25C): 3,000-7,000  
Color, Max (Gardner): 3  
Flash Point, (F): 136  
Specific Gravity, 25/25C: 1.15  
Weight (Lbs/Gal) @ 25C: 9.6

**HOECHST CELANESE CORP.: BECKOPOX Epoxide Resins:****EP 075:**

Characteristics: Reactive diluent  
 Form supplied: 100%, liquid  
 Epoxide equivalent weight: 320-360  
 EP Value: 0.28-0.31  
 Dynamic Viscosity at 25C in m-Pas: 35-55  
 Plasticizing reactive diluent for "basic" epoxide resins  
 and for curing at elevated temperature

**EP 080:**

Characteristics: Reactive diluent  
 Form supplied: 100%, liquid  
 Epoxide equivalent weight: 190-205  
 EP Value: 0.49-0.53  
 Dynamic Viscosity at 25C in m-Pas: 2.3-3.3  
 Reactive diluent for liquid EP resins, relatively  
 low vapour pressure

**EP 116:**

Characteristics: non-modified/stable to crystallization  
 Form supplied: 100%, liquid  
 Epoxide equivalent weight: 175-185  
 EP value: 0.54-0.57  
 Dynamic Viscosity at 25C in m-Pas: 6000-8000  
 Relatively low-viscosity, non-crystallizing, wide range  
 of uses

**EP 117:**

Characteristics: Stable to crystallization, reactively  
 diluted  
 Form supplied: 100%, liquid  
 Epoxide equivalent weight: 180-200  
 EP value: 0.50-0.55  
 Dynamic viscosity at 25C in m-Pas: 700-1000  
 Low-viscosity, non-crystallizing - solvent-free paints and  
 coatings, laminates, casting resins, adhesives

**EP 122:**

Characteristics: Reactively diluent, dilutable with water,  
 stable to crystallization  
 Form supplied: 100%, liquid  
 Epoxide equivalent weight: 190-200  
 EP value: 0.50-0.53  
 Dynamic viscosity at 25C in m-Pas: 650-700  
 Water-emulsifiable epoxide resin, non-crystallizing - paints,  
 jointing compounds

**HOECHST CELANESE CORP.: BECKOPOX Epoxide Resins (Continued):**

**EP 128:**

Characteristics: Reactively diluted  
Form supplied: 100%, liquid  
Epoxide equivalent weight: 190-210  
EP value: 0.48-0.53  
Dynamic viscosity at 25C in m-Pas: 500-1000  
Low-viscosity, low vapour pressure, vacuum-treatable -  
coatings, laminates, casting resins, hydraulic epoxide mortars  
(ECC)

**EP 138:**

Characteristics: Reactively diluted  
Form supplied: 100%, liquid  
Epoxide equivalent weight: 185-205  
EP value: 0.49-0.54  
Dynamic viscosity at 25C in m-Pas: 750-950  
Self-levelling floor coatings, casting resins, GRP components,  
adhesives

**EP 140:**

Characteristics: Non-modified  
Form supplied: 100%, liquid  
Epoxide equivalent weight: 180-192  
EP value: 0.52-0.55  
Dynamic viscosity at 25C in m-Pas: 9000-12000  
Standard EP resin with a wide range of uses

**EP-151:**

Characteristics: Plasticized  
Form supplied: 100%, liquid  
Epoxide equivalent weight: 400-500  
EP value: 0.20-0.25  
Dynamic viscosity at 25C in m-Pas: 20000-30000  
Internally plasticized compounding resin for "basic"  
epoxide resins, elastic coatings, casting resins, adhesives

**EP 301:**

Characteristics: Non-modified  
Form supplied: 100%, solid  
Epoxide equivalent weight: 450-525  
EP value: 0.19-0.22  
Dynamic viscosity at 25C in m-Pas: 140-190

**EP 301:**

Characteristics: Non-modified  
Form supplied: 75% in xylene  
Epoxide equivalent weight: 450-525  
EP value: 0.19-0.22  
Dynamic viscosity at 25C in m-Pas: 7000-10000  
Main use: solvent-based heavy-duty paints, anti-corrosion  
paints, adhesives, moulding compounds, electro-laminates



**HOECHST-CELANESE CORP.: BECKOPOX Epoxide Resins (Continued):****EP 303:**

Characteristics: Non-modified  
 Form supplied: 100%, solid  
 Epoxide equivalent weight: 750-830  
 EP value: 0.12-0.13  
 Dynamic viscosity at 25C in m-Pas: 450-550  
 For powder coatings, production of epoxide-resin fatty-acid esters, stoving primers and for top coatings, adhesives

**EP 304:**

Characteristics: Non-modified  
 Form supplied: 100%, solid  
 Epoxide equivalent weight: 875-1000  
 EP value: 0.10-0.11  
 Dynamic viscosity at 25C in m-Pas: 600-900  
 Epoxide-ester production powder coatings, cold-curing highly chemical-resistant paints, stoving primers and top coatings

**EP 307:**

Characteristics: Non-modified  
 Form supplied: 100%, solid  
 Epoxide equivalent weight: 1550-2000  
 EP value: 0.05-0.06  
 Dynamic viscosity at 25C in m-Pas: 1750-2700  
 For stoving paints/can coatings, amine resin and phenolic-resin combinations - combined with polyisocyanates

**EP 309:**

Characteristics: Non-modified  
 Form supplied: 100%, solid  
 Epoxide equivalent weight: 2400-4000  
 EP value: 0.02-0.04  
 Dynamic viscosity at 25C in m-Pas: 3600-12500  
 For container enamels and stoving systems, amine-resin and phenolic-resin combinations, combined with polyisocyanate for air-drying paints

**VEP 2385:**

Characteristics: Dilutable with water  
 Form supplied: approx. 54%ig in water (methoxy-propanol 39-7)  
 Epoxide equivalent weight: 525  
 EP value: 0.19  
 Dynamic viscosity at 25C in m-Pas: 800-1200  
 For quick-drying, water-dilutable paints on mineral substrates. Combined with liquid EP resins for corrosion-protection systems

**HOECHST-CELANESE CORP.: BECKOPOX Formulated Epoxide Resin Systems:**

**EM 439:**

Characteristics: Modified  
Form supplied: 50% in ethyl-glycol acetate  
Dynamic viscosity at 25C in m-Pas: 1900-2200  
Epoxide resin containing carboxyl groups; selfbinder for sterilization-proof colourless and white container-coating compounds, stoving primers.

**EM 440:**

Characteristics: Modified  
Form supplied: 20% in diacetone alcohol/butyl diglycol/butanol 6:2:1  
Dynamic viscosity at 25C in m-Pas: 10-20

**EM 441:**

Characteristics: Modified  
Form supplied: 60% in diacetone alcohol/xylene 1:1  
Dynamic viscosity at 25C in m-Pas: 4500-7000  
Elastic stoving systems with good adhesion, for primers and container-coating compounds - elasticity can be adjusted by varying the mixture ratio

**EM 443:**

Characteristics: Modified  
Form supplied: 57% in xylene/MIBK/methoxy propyl acetate 27:12:4  
Epoxide equivalent weight: 600-700  
Dynamic viscosity at 25C in m-Pas: 750-1500  
Epoxide/phenolic resin precondensate for primers and top-coating compounds with very good chemical resistance, combined with adduct hardeners.

**EM 460:**

Characteristics: Modified  
Form supplied: 60% in isobutanol/xylene 26:14  
Dynamic viscosity at 25C in m-Pas: 600-1100  
1- and 2-component adhesive primers combined with MOWITAL-B grades, finishes, weldable primers

**E 524:**

Characteristics: Modified  
Form supplied: 60% in methoxy propanol/Solv.100/Solv. 150/i-butanol/butanol 3:3:3:1:1  
Dynamic viscosity at 25C in mPa-s: 3400-5000  
Modified epoxide resins which is self-curing in heat, for internal container coatings, chemical-resistant stoving paints.

**VEM 16:**

Characteristics: Modified  
Form supplied: 100%, liquid  
Epoxide equivalent weight: 230-260  
Dynamic viscosity at 25C in m-Pas: 10000-15000  
In combination with VEH 20 (1:1) as an adhesive system

**HOECHST-CELANESE CORP.: BECKOPOX Formulated Epoxide Resin Systems (Continued):**

**Phenoxy resin:**

**VEP 40:**

Characteristics: Phenoxy resin

Form supplied: 50% in ethoxy propyl acetate/butyl acetate 2:1

Dynamic viscosity at 25C in m-Pas: approx. 2000

For stoving primers and top-coating compounds, air- and stove-drying corrosion-protection primers

**Epoxide Resin Esters:**

**DUROXYN EF 900:**

Characteristics: Epoxide resin ester

Form supplied: 60% in xylene

Dynamic viscosity at 25C in m-Pas: 650-950

**DUROXYN EF 932:**

Characteristics: Epoxide resin ester

Form supplied: 60% in xylene

Dynamic viscosity at 25C in m-Pas: 650-950

For corrosion-protection primers, zinc-rich paints, tropical-resistant paints, stamping and silver paints

**POLYCHEM CORP.: JEWEL GLAZE Epoxy Resins:**

**501-T:**

Viscosity @ 73F: 12 cps

Color: Gardner Holdt 1

Applications: 501-T is a reactive modifier to lower the viscosity and to improve the handling properties of any POLYCHEM liquid resins. About 10-20% is recommended.

**500-C:**

Viscosity @ 73F: 800 cps

Color: 2-3

Recommended Hardeners: RT91/RT89/HC911

Applications: Very low viscosity resin. When used with RT 91 Hardener it has a 2-3 hour working time and can be cured in 1 hour @ 150F. This resin is designed to replace hard fired enamels where a level high gloss finish is required. Can be used for filling emblems etc. with intricate spaces.

**501:**

Viscosity @ 73F: 6000 cps

Color: 2-3

Recommended Hardeners: RT 91/RT 89/HC 911/HC 912

Most widely used resin which can be mixed with either RT 91 or HC 911 to provide the ultimate finish for filling flat items. When used with the HC 912/RT 102 Hardener system, this resin can be used to coat 3 dimensional items or for doming purposes.

**501-C:**

Viscosity @ 73F: 6500 cps

Color: 1

Recommended Hardeners: RT 91/RT 89/HC 911/RT 95/RT 99

It is a crystal clear resin used for clear top coating on belt buckles, card cases, decals, jewelry, etc.

**501TV-C:**

Viscosity @ 73F: 7200 cps

Color: 1

Recommended Hardeners: RT 91

Water clear resin for top coating where a high dome buildup is required. Offers higher viscosity than the 501-C resin without bubbles or cloudiness.

**501LV:**

Viscosity @ 73F: 5000

Color: 2-3

Recommended Hardeners: RT 91

Low viscosity resin which has excellent air release properties for filling flat items. Common use of this resin is filling emblems, keychains and suncatchers.

**POLYCHEM CORP.: JEWEL GLAZE Epoxy Resins (Continued):****525:**

Viscosity @ 73F.: 8300 cps

Color: 2-3

Recommended Hardeners: RT 91/HC 911/HC 912

525 resin is a variation of the 501 resin where the viscosity has been increased to afford decorative coating without dripping or sag. As with POLYCHEM 501 resin, this resin can be provided to you in a presently existing color or custom color matched to your specifications.

**551:**

Viscosity: Thixotropic

Color: 2-3

Recommended Hardeners: RT 91/HC 911/HC 912

This resin is also a variation of 501 resin where the viscosity has been significantly increased to give better hold on curved surfaces.

**553:**

Viscosity @ 73F: Thixotropic

Color: 2-3

Recommended Hardeners: RT 91

Very high viscosity resin with maximum hold on curved surfaces with excellent air release and flowability. Also commonly used with RT 1 and RT 15 Adhesive Hardeners for adhesive purposes where the resin is required to stay where it is applied.

**JEWEL GLAZE Specialty Epoxy Resins:****503-C:**

Viscosity @ 73F: 1800-2000 cps

Color: 1

Recommended Hardeners: RT 106

A water clear resin having a low viscosity with excellent air release properties. When used with RT 106 hardener this resin is ideal for casting applications such as embedments.

**516-C:**

Viscosity @ 73F: 3000-4000 cps

Color: 1

Recommended Hardeners: RT 91/RT 89/HC 911

A semi-flexible clear top coating resin which gives better impact, elongation and abrasion resistance.

**POLYCHEM CORP.: JEWEL GLAZE Specialty Epoxy Resins (Continued):**

**561-14:**

Viscosity @ 73F: Filled

Color: Black or Grey

Recommended Hardeners: RT 17

Excellent tooling resin for making vacuum form molds and jigs.

**510-C:**

Viscosity @ 73F: Medium Thixotropic

Color: 1

Recommended Hardeners: RT 91

Medium thixotropic resin used for clear top coating over porous surfaces. Sealing of pottery items is a common use of this resin.

**Special Adhesive Resins:**

**504-C:**

Mix Ratio: 1-1

Color: 1-2

Recommended Hardener: RT 1/RT 15

A thixotropic resin used as an adhesive for Acetate Plastic to metal or glass.

**515-C:**

Mix Ratio: 1-1

Color: 1-2

Recommended Hardener: RT 1/RT 15

A higher viscosity version of the 504-C resin.

**509-C:**

Mix Ratio: 1-1

Color: 1-2

Recommended Hardener: RT 1

A thixotropic resin used as an adhesive for Styrene Plastic to polyester, metal, or glass.

**511-C:**

Mix Ratio: 1-1

Color: 1-2

Recommended Hardener: RT 1/RT 15

A thixotropic resin used when cementing to Vacuum Plated parts. Also used when cementing Acrylic Plastic to metal or glass.

**REICHHOLD CHEMICALS, INC.: AROFLINT Epoxy-Polyester Resins:****AROFLINT Epoxy Resins:****303-X-90:**

% Solids Weight: 90  
 Solvent: Xylene  
 Viscosity (Stokes @ 25C): 1.2-2.3  
 Color Max.: 4  
 Lbs./Gal.: 8.25

The "original" epoxy component. Primarily used with AROFLINT

202.

**607:**

% Solids Weight: 99  
 Viscosity (Stokes @ 25C): 8.8-16  
 Color Max.: 2  
 Lbs./Gal.: 8.40

Better solvent resistance and durability than AROFLINT 303.

Normally used with AROFLINT 404, 252, or 808.

**AROFLINT Polyester Resins:****202-A6X-60:**

% Solids Weight: 60  
 Solvent: PMA/Xylene  
 Viscosity (Stokes @ 25C): 10-20  
 Color Max.: 5  
 Lbs./Gal.: 10.0

The "original" acidic polyester developed for use with

AROFLINT 303.

**252-Z1-60:**

% Solids Weight: 60  
 Solvent: Mineral spirits, Aromatic 100, isobutyl isobutyrate  
 Viscosity (Stokes @ 25C): 1.7-2.5  
 Color Max.: 5  
 Lbs./Gal.: 9.40

Low odor acidic polyester designed primarily for trade sales use when combined with AROFLINT 607. Soluble in aliphatics.

**404-XX-60:**

% Solids Weight: 60  
 Solvent: n-butyl acetate, VM&P, n-butanol, ethyl benzene.  
 Viscosity (Stokes @ 25C); 4.7-6.3  
 Color Max.: 5  
 Lbs./Gal.: 9.95

The "improved" acidic polyester developed for use with

AROFLINT 607 to produce fast air dry.

**D808-XD-71:**

% Solids Weight: 71  
 Solvent: Xylene, Isopropanol, Propylene Glycol, Monomethyl

Ether

Viscosity (Stokes @ 25C): 5-10  
 Color Max.: 5  
 Lbs./Gal.: 13.97

May be formulated to the 3.0-3.5 lb./gal. VOC range. Combined with AROFLINT 607, provides coatings with excellent appearance, toughness, and water resistance.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Esters:**

**38-403:**

% Solids: Weight: 50/Volume: 45  
Solvent: Xylene  
Viscosity Gardner-Holdt: V-X  
Color Max.: 6  
Lbs./Gal.: 8.0  
Based on TOFA. Good compatibility with amino resins.

**38-406:**

% Solids: Weight: 60/Volume: 53  
Solvent: Mineral spirits  
Viscosity Gardner-Holdt: Z1-Z3  
Color Max.: 8  
Lbs./Gal.: 7.7  
Rosin modified epoxy ester. Rule 66 exempt.

**38-407:**

% Solids: Weight: 50/Volume: 45  
Solvent: Xylene  
Viscosity Gardner-Holdt: W-Y  
Color Max.: 6  
Lbs./Gal.: 8.0  
Based on TOFA. Air dry or baking properties.

**38-411:**

% Solids: Weight: 50/Volume: 45  
Solvent: Xylene  
Viscosity Gardner-Holdt: T-V  
Color Max.: 5  
Lbs./Gal.: 8.0  
Based on oxidizing type fatty acid.

**38-690:**

% Solids: Weight: 70/Volume: 66  
Solvent: EB  
Viscosity Gardner-Holdt: Z6-Z7  
Color Max.: 7  
Lbs./Gal.: 8.4  
Water reducible epoxy ester designed for VOC compliant coatings with fast air dry and good corrosion protection.

**38-691:**

% Solids: Weight: 70/Volume: 67  
Solvent: EP  
Viscosity Gardner-Holdt: Z6-Z7  
Color Max.: 7  
Lbs./Gal.: 8.42  
Water reducible epoxy ester which may be formulated into coatings which are FDA approved.



**REICHHOLD CHEMICALS, INC.: EPOTUF Liquid Epoxy Resins:**

Diluted - 100% reactive - low viscosity:

**37-100:**

Epoxide Equivalent Weight: 210-225

Viscosity Brookfield, cps: 3,000-5,000

Color Max.: 1

Type: Contains 37-051

Lbs./Gal.: 9.40

Applications and Comments: Adhesives, Coatings

High solids coatings. Improved flexibility, adhesion, and toughness.

**37-127:**

Epoxide Equivalent Weight: 190-205

Viscosity Brookfield cps: 500-700

Color Max.: 1

Type: Contains C12-C14 Aliphatic Glycidyl Ether

Lbs./Gal.: 9.20

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Low viscosity permits excellent penetration and high filler loading. Primary skin irritation equal to or lower than undiluted epoxy resins.

**37-128:**

Epoxide Equivalent Weight: 190-210

Viscosity Brookfield, cps: 500-1,000

Color Max.: 2

Type: Contains p-tertiary Butyl Phenyl Glycidyl Ether

Lbs./Gal.: 9.35

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Low volatility. Excellent penetration. High filler loading.

**37-130:**

Epoxide Equivalent Weight: 175-185

Viscosity Brookfield, cps: 500-700

Color Max.: 2

Type: Contains BGE

Lbs./Gal.: 9.45

Applications and Comments: Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Low viscosity permits excellent penetration and high filler loading.

**REICHHOLD CHEMICALS, INC.: EPOTUF Liquid Epoxy Resins  
(Continued):**

**Diluted-100% reactive-low viscosity (Continued):**

**37-134:**

Epoxide Equivalent Weight: 215-235  
Viscosity Brookfield, cps: 2,100-3,100  
Color Max.: 1  
Type: Contains Dibutyl Phthalate  
Lbs./Gal.: 9.50  
Applications: Adhesives, Coatings, Electrical Potting,  
Encapsulating and Casting, Flooring and Surfacing  
Non-crystallizing. Improved thermal shock resistance.

**37-135:**

Epoxide Equivalent Weight: 185-195  
Viscosity Brookfield, cps: 5,000-6,500  
Color Max.: 2  
Type: Contains p-tertiary Butyl Phenyl Glycidyl Ether  
Lbs./Gal.: 9.50  
Applications: Adhesives, Electrical Potting, Encapsulating and  
Casting, Hand Lay-Up Laminating and Tooling, Filament Winding  
High heat distortion temperature.

**37-137:**

Epoxide Equivalent Weight: 175-195  
Viscosity Brookfield, cps: 500-700  
Color Max.: 3  
Type: Contains CGE  
Lbs./Gal.: 9.45  
Applications and Comments: Electrical Potting, Encapsulating  
and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and  
Tooling.  
Reduced crystallization. Best chemical resistance of  
diluted resins.

**Undiluted:**

**37-138:**

Epoxide Equivalent Weight: 170-190  
ASTM D445 cps: 3,000-4,500  
Color Max.: 3  
Type: Bisphenol F Diglycidyl Ether  
Lbs./Gal.: 9.65  
Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting, High Pressure Laminating,  
Filament Winding  
The "standard" Bis-F epoxy. Higher performance than diluted  
epoxies.

**REICHHOLD CHEMICALS, INC.: EPOTUF Liquid Epoxy Resins  
(Continued):****Undiluted (Continued):****37-139:**

Epoxide Equivalent Weight: 175-185  
Viscosity Brookfield, cps: 6,000-9,500

Color Max.: 1

Type: Undiluted medium viscosity

Lbs./Gal.: 9.65

Applications and Comments: Adhesives, Electrical Potting,  
Encapsulating and Casting, Filament Winding

Maximum performance, lowest viscosity of the Bisphenol-A  
type epoxies.

**37-140:**

Epoxide Equivalent Weight: 180-190  
Viscosity Brookfield, cps: 11,000-13,500

Color Max.: 1

Type: Undiluted medium high viscosity

Lbs./Gal.: 9.65

Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting, High Pressure Laminating,  
Filament Winding

The "standard" Bisphenol-A diglycidyl ether.

**37-141:**

Epoxide Equivalent Weight: 190-200  
Viscosity Brookfield cps: 16,000-22,000

Color Max: 3

Type: Slightly advanced 37-140

Lbs./Gal.: 9.70

Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting.

High solids plastics and adhesives.

**Modified:****37-151:**

Epoxide Equivalent Weight: 450-550  
Viscosity Brookfield cps: 30,000-70,000

Color Max.: 5

Type: Inherent flexibility

Lbs./Gal.: 8.95

Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting, Flooring and Surfacing

Excellent thermal shock resistance and good elongation at  
low temperatures. Permanently flexible. Low exotherm.

**REICHHOLD CHEMICALS, INC.: EPOTUF Liquid Epoxy Resins  
(Continued):**

**Modified (Continued):**

**37-152:**

Epoxide Equivalent Weight: 175-185

Brookfield cps: 25,000-35,000

Color Max.: 2

Type: Multifunctional

Lbs./Gal.: 9.80

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, High Pressure Laminating, Filament Winding

Multifunctional resin with an average epoxy functionality of 2.4.

**37-200:**

Epoxide Equivalent Weight: 240-260

Brookfield cps: 5,000-10,000 Poises

Color Max.: 5

Type: Brominated resin 24-26% Br

Lbs./Gal.: 13.70

Applications and Comments: Coatings, Electrical Potting, Encapsulating and Casting, High Pressure Laminating, Filament Winding.

Used in applications requiring improved fire performance characteristics.

**REICHHOLD CHEMICALS, INC.: EPOTUF Resin Solutions:****Coating Solutions:****38-515:**

EEW = 230-280  
Viscosity Gardner-Holdt @ 25C (77F): Z3-Z6  
Color Max.: 3  
Solvent: Xylene  
% N.V. (% Base Resin in Solution): 90+-1  
Lbs./Gal. Solution: 9.5

**38-501:**

EPOTUF Base Resin No.: 37-001  
Viscosity Gardner-Holdt @ 25C (77F): Z3-Z6  
Color Max.: 3  
Solvent: 66.7% MIBK/33.3% Xylene  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 9.0

**38-502:**

EPOTUF Base Resin No.: 37-001  
Viscosity Gardner-Holdt @ 25C (77F): Z4-Z7  
Color Max.: 3  
Solvent: (ethyl 3-ethoxypropionate)  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 9.5

**38-505:**

EPOTUF Base Resin No.: 37-001  
Viscosity Gardner-Holdt @ 25C (77F): Z3-Z6  
Color Max.: 3  
Solvent: Xylene  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 9.0

**38-507:**

EPOTUF Base Resin No.: 37-001  
Viscosity Gardner-Holdt @ 25C (77F): Z3-Z6  
Color Max.: 3  
Solvent: Toluene  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 9.1

**38-527:**

EPOTUF Base Resin No.: 37-001  
Viscosity Gardner-Holdt @ 25C (77F): Z4-Z7  
Color Max.: 3  
Solvent: (Propylene glycol monomethyl ether acetate)  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 9.5

**REICHHOLD CHEMICALS, INC.: EPOTUF Resin Solutions (Continued):**

38-519:

EPOTUF Base Resin No.: 37-004  
Viscosity Gardner-Holdt @ 25C (77F): U-X  
Color Max.: 3  
Solvent: 50% MIBK/50% Toluene  
% N.V. (% Base Resin in Solution): 60+-1  
Lbs./Gal. Solution: 8.3

38-531:

EPOTUF Base Resin No.: 37-006  
Viscosity Gardner-Holdt @ 25C (77F): Z1-Z6  
Color Max.: 3  
Solvent: (Propylene glycol monomethyl ether acetate)  
% N.V. (% Base Resin in Solution): 55+-1  
Lbs./Gal. Solution: 8.9

38-532:

EPOTUF Base Resin No.: 37-006  
Viscosity Gardner-Holdt @ 25C (77F): Z1-Z6  
Color Max.: 3  
Solvent: (Ethyl 3-ethoxypropionate)  
% N.V. (% Base Resin in Solution): 55+-1  
Lbs./Gal. Solution: 8.9

38-528:

EPOTUF Base Resin No.: 37-007  
Viscosity Gardner-Holdt @ 25C (77F): Z1-Z5  
Color Max.: 3  
Solvent: 50% Toluene/50% PMA  
% N.V. (% Base Resin in Solution): 55+-1  
Lbs./Gal. Solution: 9.1

38-509:

EPOTUF Base Resin No.: 37-009  
Viscosity Gardner-Holdt @ 25C (77F): X-Z2  
Color Max.: 3  
Solvent: (Propylene glycol monomethyl ether acetate)  
% N.V. (% Base Resin in Solution): 40+-1  
Lbs./Gal. Solution: 8.8

38-525:

EPOTUF Base Resin No.: Very High Molecular Weight  
Viscosity Gardner-Holdt @ 25C (77F): V-Y  
Color Max.: 3  
Solvent: 80% MEK/12% Cyclohexanone/8% PMA  
% N.V. (% Base Resin in Solution): 40+-1  
Lbs./Gal. Solution: 8.0

38-572:

EPOTUF Base Resin No.: Flexible  
Viscosity Gardner-Holdt @ 25C (77F): X-Z3  
Color Max.: 10  
Solvent: Xylene  
% N.V. (% Base Resin in Solution): 75+-1  
Lbs./Gal. Solution: 8.5

**REICHHOLD CHEMICALS, INC.: EPOTUF Solid Epoxy Resins:****37-001:**

Epoxide Equivalent Weight: 475-575

Viscosity Gardner-Holdt: G-J

Color Max.: 1

Softening Point C: 75-85

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, High Pressure Laminating  
Lowest molecular weight solid epoxy. Two package, corrosion resistant coatings.

**37-002:**

Epoxide Equivalent Weight: 575-685

Viscosity Gardner-Holdt: J-N

Color Max.: 1

Softening Point C: 84-94

Applications and Comments: Adhesives, Coatings, High Pressure Laminating  
Less sintering than 37-001. Powder coatings.

**37-004:**

Epoxide Equivalent Weight: 875-1,025

Viscosity Gardner-Holdt: T-V

Color Max.: 1

Softening Point C: 98-108

Applications and Comments: Adhesives, Coatings  
Specially formulated for epoxy ester production. Powder coatings.

**37-006:**

Epoxide Equivalent Weight: 1,600-2,000

Viscosity Gardner-Holdt: X-Z2

Color Max.: 1

Softening Point C: 120-135

Applications and Comments: Adhesives, Coatings  
Powder coatings. Elevated temperature cure with amino or phenolic resins. Can and coil coatings.

**37-007:**

Epoxide Equivalent Weight: 2,000-2,600

Viscosity Gardner-Holdt: Z-Z4

Color Max.: 1

Softening Point C: 130-148

Applications and Comments: Adhesives, Coatings  
Highest molecular weight solid epoxy. Can and coil coatings.

**REICHHOLD CHEMICALS, INC.: KELPOXY Elastomer Modified Epoxy Concentrates:**

**G-202:**

Epoxide Equivalent Weight: 220-260

Viscosity, poise: 150-250

Color Max.: 10

Lbs./Gal.: 9.39

Applications and Comments: Adhesives, Coatings, Filament

**Winding**

Unique modification gives relatively low viscosity.

**G-272:**

Epoxide Equivalent Weight: 320-360

Viscosity, poise: 5,000-9,000

Color Max.: 14

Lbs./Gal.: 8.98

Applications and Comments: Adhesives, Coatings, Filament

**Winding**

Contains 40% CTBN rubber. Improved compatibility with epoxy novolacs.

**G-293:**

Epoxide Equivalent Weight: 320-360

Viscosity, poise: 1,400-2,500

Color Max.: 10

Lbs./Gal.: 8.82

Applications and Comments: Adhesives, Coatings, Filament

**Winding**

Contains 40% CTBN rubber. Lower viscosity than G-272.

**519-K2-70:**

Epoxide Equivalent Weight: 630-700

Viscosity, poise: 50-100 stokes

Color Max.: 9

Lbs./Gal.: 8.56

Applications and Comments: Coatings, High Pressure Laminating.

Solution of rubber modified epoxy in MIBK at 70% solids.



**RHONE-POULENC, INC.: EPI-REZ Elastomer Modified Resins:****58005:**

Description: CTBN adduct of standard liquid epoxy resin.

40% Hycar 1300x13

Viscosity at 25C, cps: 450,000

Weight/Epoxide: 350

Pounds/Gallon: 9.0

Color Gardner (maximum): 10

**58006:**

Description: CTBN adduct of standard liquid epoxy resin.

40% Hycar 1300X8.

Viscosity at 25C, cps: 190,000

Weight/Epoxide: 345

Pounds/Gallon: 8.9

Color Gardner (maximum): 10

**58034:**

Description: CTBN adduct of HELOXY 68

Viscosity at 25C, cps: 6,000

Weight/Epoxide: 290

Pounds/Gallon: 8.3

Color Gardner (maximum): 10

**58042:**

Description: CTBN adduct of HELOXY 107

Viscosity at 25C, cps: 20,000

Weight/Epoxide: 340

Pounds/Gallon: 8.5

Color Gardner (maximum): 9

**58598:**

Description: Urethane modified epoxy

Viscosity at 25C, cps: 35,000

Weight/Epoxide: 234

Pounds/Gallon: 9.5

Color Gardner (maximum): 4

**5901A:**

Description: CTBN adduct with standard liquid epoxy resin.

5% Hycar 1072

Viscosity at 25C, cps: 300,000

Weight/Epoxide: 203

Pounds/Gallon: 9.6

Color Gardner (maximum): 5

**RHONE-POULENC, INC.: EPI-REZ Epoxy Resin Solutions:**

**242:**

Comments: Maintenance vehicle  
Base Resin: 515  
Viscosity at 25C: Z4  
Solvent: Xylene  
Nonvolatiles % by weight: 90  
Pounds/Gallon: 9.5

**285:**

Comments: Air dry or baked coatings  
Base Resin: 530-C  
Viscosity at 25C: Z  
Solvent: Xylene/2-butoxyethanol  
Nonvolatiles % by weight: 60  
Pounds/Gallon: 8.7

**2036:**

Comments: For laminating, adhesives, or air dry coatings  
Base Resin: 520-C  
Viscosity at 25C: Z3  
Solvent: Methyl isobutyl ketone/xylene  
Nonvolatiles % by weight: 75  
Pounds/Gallon: 9.0

**2047:**

Comments: For adhesives, or air dry coatings  
Base Resin: 520-C  
Viscosity at 25C: Z3  
Solvent: Toluene  
Nonvolatiles % by weight: 75  
Pounds/Gallon: 9.1

**2136:**

Comments: For adhesives, or air dry coatings  
Base Resin: 520-C  
Viscosity at 25C: Z5  
Solvent: Xylene  
Nonvolatiles % by weight: 75  
Pounds/Gallon: 9.1

**CMD 2493:**

Comments: For adhesives, or air dry coatings  
Base Resin: 520-C  
Viscosity at 25C: Z4  
Solvent: 2-propoxyethanol/Methyl ethyl ketone  
Nonvolatiles % by weight: 75  
Pounds/Gallon: 9.1

**RHONE-POULENC, INC.: EPI-REZ Epoxy Resin Solutions (Continued):****CMD 2494:**

Comments: High solids baking resin  
Base Resin: Modified 540 type  
Viscosity at 25C: Z2  
Solvent: Methyl amyl ketone  
Nonvolatiles % by weight: 70  
Pounds/Gallon: 8.6

**CMD 2495:**

Comments: For baking primers and enamels  
Base Resin: 540 type  
Viscosity at 25C: Y  
Solvent: 2-methoxypropyl acetate  
Nonvolatiles % by weight: 50  
Pounds/Gallon: 8.8

**CMD 2496:**

Comments: For industrial bake finishes  
Base Resin: 540-C  
Viscosity at 25C: Z1  
Solvent: 2-methoxypropyl acetate/xylene  
Nonvolatiles % by weight: 55  
Pounds/Gallon: 8.8

**2497:**

Comments: For high performance industrial bake finishes  
Base Resin: 540 type  
Viscosity at 25C: Z  
Solvent: 2-methoxypropyl acetate  
Nonvolatiles % by weight: 45  
Pounds/Gallon: 8.9

**RHONE-POULENC, INC.: EPI-REZ Liquid Epoxy Resins:**

509:

Low viscosity 510  
Viscosity at 25C, cps: 8000  
Weight/Epoxide: 180  
Pounds/Gallon: 9.7  
Color Gardner (maximum): 1

510:

Basic B.P.A. resin  
Viscosity at 25C, cps: 12,250  
Weight/Epoxide: 188  
Pounds/Gallon: 9.7  
Color Gardner (maximum): 1

WD-510:

Water dispersible 510  
Viscosity at 25C, cps: 10,000  
Weight/Epoxide: 200  
Pounds/Gallon: 9.6  
Color Gardner (maximum): 2

5027:

High reactivity resin  
Viscosity at 25C, cps: 100  
Weight/Epoxide: 310  
Pounds/Gallon: 9.2  
Color Gardner (maximum): 1

5071:

510 modified with HELOXY 61  
Viscosity at 25C, cps: 600  
Weight/Epoxide: 185  
Pounds/Gallon: 9.4  
Color Gardner (maximum): 2

5077:

510 modified with HELOXY 62  
Viscosity at 25C, cps: 600  
Weight/Epoxide: 188  
Pounds/Gallon: 9.5  
Color Gardner (maximum): 3

5132:

Flexible resin  
Viscosity at 25C, cps: 47,500  
Weight/Epoxide: 425  
Pounds/Gallon: 8.9  
Color Gardner (maximum): 18

**RHONE-POULENC, INC.: EPI-REZ Liquid Epoxy Resins (Continued):****50727:**

Very high reactivity resin  
Viscosity at 25C, cps: 950  
Weight/Epoxide: 310  
Pounds/Gallon: 9.5  
Color Gardner (maximum): 2

**50732:**

510 modified with HELOXY 8  
Viscosity at 25C, cps: 600  
Weight/Epoxide: 200  
Pounds/Gallon: 9.2  
Color Gardner (maximum): 2

**50735:**

Low viscosity resin  
Viscosity at 25C, cps: 600  
Weight/Epoxide: 220  
Pounds/Gallon: 9.3  
Color Gardner (maximum): 2

**50834:**

Flexible resin  
Viscosity at 25C, cps: 1350  
Weight/Epoxide: 260  
Pounds/gallon: 9.2  
Color Gardner (maximum): 5

**50856:**

510 modified with HELOXY 8  
Viscosity at 25C, cps: 1800  
Weight/Epoxide: 195  
Pounds/Gallon: 9.4  
Color Gardner (maximum): 3

**CMD 50858:**

Moderate viscosity resin  
Viscosity at 25C, cps: 2100  
Weight/Epoxide: 207  
Pounds/Gallon: 9.6  
Color Gardner (maximum): 1

**RHONE-POULENC, INC.: EPI-REZ Solid Epoxy Resins:**

**520-C:**

Description: Bisphenol A resin (sintering)  
Melting Point C: 73  
Reduced Viscosity at 25C: E  
Weight/Epoxide: 487  
Color Gardner (maximum): 2

**522-C:**

Description: Bisphenol A resin  
Melting Point C: 86  
Reduced Viscosity at 25C: I  
Weight/Epoxide: 587  
Color Gardner (maximum): 2

**530-C:**

Description: Bisphenol A resin  
Melting Point C: 100  
Reduced Viscosity at 25C: S  
Weight/Epoxide: 900  
Color Gardner (maximum): 3

**540-C:**

Description: Bisphenol A resin  
Melting Point C: 128  
Reduced Viscosity at 25C: Y  
Weight/Epoxide: 1600  
Color Gardner (maximum): 3

**RHONE-POULENC, INC.: EPI-REZ Waterborne/Reducible Resins:****WD-510:**

Water dispersible EPI-REZ 510  
Viscosity at 25C, cps: 10,000  
Weight/Epoxide (solids): 200  
Pounds/Gallon: 9.6  
Nonvolatiles % by weight: 100

**W60-3515:**

EPI-REZ 515 epoxy dispersion  
Viscosity at 25C, cps: 11,500  
Weight/Epoxide (solids): 240  
Pounds/Gallon: 9.2  
Nonvolatiles % by weight: 60  
Solvent: Water

**CMD W50-3519:**

Elastomer modified epoxy dispersion  
Viscosity at 25C, cps: 13,000  
Weight/Epoxide (solids): 600  
Pounds/Gallon: 8.8  
Nonvolatiles % by weight: 47  
Solvent: Water

**WJ-3520:**

EPI-REZ 520-C epoxy dispersion for coatings  
Viscosity at 25C, cps: 12,000  
Weight/Epoxide (solids): 535  
Pounds/Gallon: 9.1  
Nonvolatiles % by weight: 55  
Solvent: Water/2-propoxyethanol

**35201:**

EPI-REZ 522-C epoxy dispersion  
Viscosity at 25C, cps: 12,000  
Weight/Epoxide (solids): 665  
Pounds/Gallon: 9.2  
Nonvolatiles % by weight: 60  
Solvent: Water

**CMD WJ55-3540:**

EPI-REZ 540-C epoxy dispersion for bake coatings  
Viscosity at 25C, cps: 12,000  
Weight/Epoxide (solids): 1800  
Pounds/Gallon: 9.0  
Nonvolatiles % by weight: 55  
Solvent: Water/2-propoxyethanol

**RHONE-POULENC, INC.: EPI-REZ Waterborne/Reducible Resins  
(Continued):**

**W55-5003:**

EPI-REZ SU-3 epoxy dispersion  
Viscosity at 25C, cps: 11,500  
Weight/Epoxide (solids): 200  
Pounds/Gallon: 9.2  
Nonvolatiles % by weight: 57  
Solvent: Water

**WJ-5522:**

Polyfunctional epoxy dispersion for coatings  
Viscosity at 25C, cps: 14,000  
Weight/Epoxide (solids): 625  
Pounds/Gallon: 9.0  
Nonvolatiles % by weight: 53.5  
Solvent: Water/2-propoxyethanol

**W60-5520:**

Epoxy urethane dispersion  
Viscosity at 25C, cps: 14,000  
Weight/Epoxide (solids): 520  
Pounds/Gallon: 9.2  
Nonvolatiles % by weight: 59  
Solvent: Water

**EPI-TEX 611Q:**

EPI-TEX 199 type epoxy ester emulsion  
Viscosity at 25C, cps: 100 K.U.  
Pounds/Gallon: 8.5  
Nonvolatiles % by weight: 60  
Solvent: Water/mixed aromatics



**RHONE-POULENC, INC.: EPI-TEX Epoxy Ester Resins:****183:**

General purpose air dry and forced dry finishes  
Viscosity at 25C: X  
Solvent: Xylene  
Nonvolatiles, % by weight: 50  
Pounds/Gallon: 8.0  
Acid Value (maximum): 2.5

**199:**

General purpose with slow solvent for brushing  
Viscosity at 25C: Z  
Solvent: Mineral spirits  
Nonvolatiles, % by weight: 60  
Pounds/Gallon: 7.7  
Acid Value (maximum): 10

**1486:**

Designed for industrial baking enamels  
Viscosity at 25C: Z4  
Solvent: Mixed aromatics/xylene  
Nonvolatiles, % by weight: 50  
Pounds/Gallon: 8.1  
Acid Value (maximum): 10

**1591:**

Improved speed of dry and early water resistance  
Viscosity at 25C: W  
Solvent: Xylene  
Nonvolatiles, % by weight: 50  
Pounds/Gallon: 8.0  
Acid Value (maximum): 1

**1662:**

Exempt version of EPI-TEX 183  
Viscosity at 25C: X  
Solvent: Contains xylene, VM&P naphtha, n-butyl alcohol and  
n-butyl acetate  
Nonvolatiles, % by weight: 50  
Pounds/Gallon: 7.6  
Acid value (maximum): 2.5

**1663:**

Exempt version of EPI-TEX 199  
Viscosity at 25C: Z  
Solvent: Contains high solvency hydrocarbons and mineral  
spirits  
Nonvolatiles, % by weight: 60  
Pounds/Gallon: 7.7  
Acid Value (maximum): 10

**RHONE-POULENC, INC.: EPI-TEX Epoxy Ester Resins (Continued):**

**CMD 1690:**

High solids epoxy ester  
Viscosity at 25C: 22  
Solvent: Xylene  
Nonvolatiles, % by weight: 80  
Pounds/gallon: 8.3  
Acid Value (maximum): 2.5

**611Q:**

Epoxy ester emulsion EPI-TEX 199 type  
Viscosity at 25C: 100 K.U.  
Solvent: Water/mixed aromatics  
Nonvolatiles, % by weight: 60  
Pounds/Gallon: 8.5

**RHONE-POULENC, INC.: Brominated Epoxy Resins:**

**HELOXY 5063:**

Dibromoneopentyl glycol diglycidyl ether  
Halogen Content: 38% Halogen  
Viscosity at 25C: 385 cps  
Weight/Epoxide: 275  
Color Gardner (maximum): 5

**EPI-REZ 5163:**

Tetrabromo bisphenol A diglycidyl ether  
Halogen Content: 48% Bromine  
Viscosity at 25C: 150  
Weight/Epoxide: 400  
Melting Point, C: 70  
Color Gardner (maximum): 8

**EPI-REZ 5183:**

Non-sintering solid resin  
Halogen Content: 42% Bromine  
Viscosity at 25C: 1350  
Weight/Epoxide: 675  
Melting Point, C: 97  
Color Gardner (maximum): 3

**RHONE-POULENC, INC.: High Performance Polyfunctional EPI-REZ  
Epoxy Resins**

**SU-2.5:**

Comments: Polyfunctional resin  
Average Functionality: 2.5  
Melt Viscosity at 50C: 4000 cps  
Weight/Epoxide: 190

**SU-3:**

Comments: Polyfunctional resin  
Average Functionality: 3.0  
Melt Viscosity at 50C: 30,000 cps  
Weight/Epoxide: 197

**SU-8:**

Comments: High temperature polyfunctional resin  
Average Functionality: 8.0  
Melt Viscosity at 50C: 3500 cps  
Weight/Epoxide: 213

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions:****EPON Resins-Liquids:****EPON Resin 813:**

Viscosity poise: 5-7  
Color Gardner Max: 75  
Epoxide Equivalent Weight: 180-195  
Lbs/gal: 9.5  
Diluent: Cresyl Glycidyl Ether

**EPON Resin 815:**

Viscosity poise: 5-7  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 175-195  
Lbs/gal: 9.5  
Diluent: Butyl Glycidyl Ether

**EPON Resin 823:**

Viscosity poise: 65-95  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 187-194  
Lbs/gal: 9.7  
Diluent: Para-Tertiary Butyl  
Phenyl Glycidyl Ether

**EPON Resin 8132:**

Viscosity poise: 5-7  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 195-215  
Lbs/gal: 9.2  
Diluent: NEODOL Glycidyl Ether

**EPON Resin 8201:**

Viscosity poise: 50-65  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 180-195  
Lbs/gal: 9.7  
Diluent: Cresyl Glycidyl Ether

**EPON Resin 826:**

Viscosity poise: 65-95  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 178-186  
Lbs/gal: 9.7

**EPON Resin 828:**

Viscosity poise: 110-150  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 185-192  
Lbs/gal: 9.7

**EPON Resin 829:**

Viscosity poise: 30-70  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 193-203  
Lbs/gal: 9.6

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins-Liquids (Continued):**

**EPON Resin 829H:**

Viscosity poise: 30-70  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 193-203  
Lbs/gal: 9.6

**EPON Resin 830:**

Viscosity poise: 170-225  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 190-198  
Lbs/gal: 9.7

**EPON Resin 8280:**

Viscosity poise: 110-150  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 185-195  
Lbs/gal: 9.7

**EPON Resin 8281:**

Viscosity poise: 110-140  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 182-195  
Lbs/gal: 9.7

**EPON Resins--Solids:**

**EPON Resin 1001F:**

Viscosity centipoise: 7.0-9.6  
Color Pt-Co Max: 200  
Epoxide Equivalent Weight: 525-550  
Viscosity Gardner-Holdt: G-I  
Density: 1.20  
Gardner Color: 1

**EPON Resin 1002F:**

Viscosity centipoise: 9.2-13.6  
Color Pt-Co Max: 200  
Epoxide Equivalent Weight: 600-700  
Viscosity Gardner-Holdt: J-N  
Density: 1.20  
Gardner Color: 1

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins--Solids(Continued):**

**EPON Resin 1004F:**

Viscosity centipoise: 15-25  
Color Pt-Co Max: 200  
Epoxide Equivalent Weight: 800-950  
Viscosity Gardner-Holdt: P-U+  
Density: 1.20  
Gardner Color: 1

**EPON Resin 1007F:**

Viscosity centipoise: 50-100  
Color Pt-Co Max: 200  
Epoxide Equivalent Weight: 1700-2300  
Viscosity Gardner-Holdt: Y-Z2  
Density: 1.19  
Gardner Color: 1

**EPON Resin 1009F:**

Viscosity centipoise: 100-250  
Color Pt-Co Max: 200  
Epoxide Equivalent Weight: 2300-3800  
Viscosity Gardner-Holdt: Z2-Z5  
Density: 1.19  
Gardner Color: 1

**Powder Coating/Molding Powder Solids:**

**EPON Resin 2002:**

Viscosity centipoise: 10-17  
Color Pt-Co Max: 100  
Epoxide Equivalent Weight: 675-760  
Melt Viscosity centipoise: 2400-3000  
Density: 1.19

**EPON Resin 2003:**

Viscosity centipoise: 13.5-18.0  
Color Pt-Co Max: 100  
Epoxide Equivalent Weight: 725-825

**EPON Resin 2004:**

Viscosity centipoise: 18-27  
Color Pt-Co Max: 100  
Epoxide Equivalent Weight: 875-975  
Melt Viscosity centipoise: 8000-13000  
Density: 1.20

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins--Solids (Continued):**

**Powder Coating/Molding Powder Solids (Continued):**

**EPON Resin DPS-2005:**

Viscosity centipoise: 25-55

Color Pt-Co Max: 100

Epoxide Equivalent Weight: 1200-1400

**EPON Resin 2002-FC 10:**

Epoxide Equivalent Weight: 760-875

Density: 1.16

**EPON Resin 2022:**

Viscosity centipoise: 10-17

Color Pt-Co Max: 100

Epoxide Equivalent Weight: 675-760

Melt Viscosity centipoise: 2200-3000

**EPON Resin 2024:**

Viscosity centipoise: 17-26

Color Pt-Co Max: 100

Epoxide Equivalent Weight: 850-950

Melt Viscosity centipoise: 6000-12000

Density: 1.18

**EPON Resin 3001:**

Viscosity centipoise: 5.6-7.2

Color Pt-Co Max: 500

Epoxide Equivalent Weight: 440-550

Melt Viscosity centipoise: 300-450

Density: 1.18

**EPON Resin 3002:**

Viscosity centipoise: 7.4-9.5

Color Pt-Co Max: 500

Epoxide Equivalent Weight: 520-590

Melt Viscosity centipoise: 600-800

Density: 1.18



**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):****EPON Resins-Brominated Solutions:****EPON Resin 1120-A-80:**

%w Solids: 80  
Solvent: Acetone  
Viscosity poise: 5-15  
Color Gardner Max: 3  
Epoxy Equivalent Weight: 455-475  
Bromine Content %w: 19-21  
Lbs/gal: 10.3

**EPON Resin 1123-A-80:**

%w Solids: 80  
Solvent: Acetone  
Viscosity poise: 8-18  
Color Gardner Max: 3  
Epoxy Equivalent Weight: 420-440  
Bromine Content %w: 18-20.5  
Lbs/gal: 10.2

**EPON Resin 1124-A-80:**

%w Solids: 80  
Solvent: Acetone  
Viscosity poise: 15-25  
Color Gardner Max: 3  
Epoxy Equivalent Weight: 425-445  
Bromine Content %w: 18-21  
Lbs/gal: 10.2

**EPON Resins--Solutions:****EPON Resin 834-K-90:**

% weight Solids: 90  
Solvents: OXITOL  
Viscosity Gardner Holdt: Z4-Z8  
Color Gardner Max: 3  
Epoxy Equivalent Weight: 230-300  
Lbs/gal: 9.6

**EPON Resin 834-X-80:**

% weight Solids: 80  
Solvents: Xylene  
Viscosity Gardner-Holdt: R-Y  
Color Gardner Max: 3  
Epoxy Equivalent Weight: 230-280  
Lbs/gal: 9.2

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins--Solutions (Continued):**

**EPON Resin 834-X-90:**

% weight Solids: 90  
Solvents: Xylene  
Viscosity Gardner-Holdt: Z4-Z8  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 230-280  
Lbs/gal: 9.5

**EPON Resin 836-A-85:**

% weight Solids: 85  
Solvents: Acetone  
Viscosity Gardner-Holdt: W-Z1  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 280-335  
Lbs/gal: 9.1

**EPON Resin 836-C-75:**

% weight Solids: 75  
Solvents: MIBK  
Viscosity Gardner-Holdt: L-U  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 280-335  
Lbs/gal: 8.9

**EPON Resin 1001-A-80:**

% weight Solids: 80  
Solvents: Acetone  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-550  
Lbs/gal: 9.2

**EPON Resin 1001-B-80:**

% weight Solids: 80  
Solvents: MEK  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-550  
Lbs/gal: 9.1

**EPON Resin 1001-CX-75:**

% weight Solids: 75  
Solvents: MIBK/Xylene 65:35  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-550  
Lbs/gal: 9.1

**SHELL CHEMICAL CO.: EPON Resin and Resin Solutions (Continued):****EPON Resins--Solutions (Continued):****EPON Resin 1001-FT-75:**

% weight Solids: 75  
Solvents: N-Butyl Alcohol/Toluene 50:50  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-600  
Lbs/gal: 9.1

**EPON Resin 1001-K-75:**

% weight Solids: 75  
Solvents: OXITOL  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-600  
Lbs/gal: 9.4

**EPON Resin 1001-T-75:**

% weight Solids: 75  
Solvents: Toluene  
Viscosity Gardner-Holdt: Z2-Z7  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-550  
Lbs/gal: 9.1

**EPON Resin 1001-X-75:**

% weight Solids: 75  
Solvents: Xylene  
Viscosity Gardner-Holdt: Z2-Z7  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-550  
Lbs/gal: 9.1

**EPON Resin 1001-H-75:**

% weight Solids: 75  
Solvents: Propylene Glycol Methyl Ether (PGME)  
Viscosity Gardner-Holdt: Z2-Z7  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-600  
Lbs/gal: 9.2

**EPON Resin 1001-HX-75:**

% weight Solids: 75  
Solvents: PGME/Xylene 75:25  
Viscosity Gardner-Holdt: Z2-Z7  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 450-600  
Lbs/gal: 9.2

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins--Solutions (Continued):**

**EPON Resin 1007-CT-55:**

% weight Solids: 55  
Solvents: MIBK/Toluene 50:50  
Viscosity Gardner-Holdt: Z-Z4  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 1600-2300  
Lbs/gal: 8.4

**EPON Resin 1007-KT-55:**

% weight Solids: 55  
Solvents: OXITOL/Toluene 50:50  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 1600-3000  
Lbs/gal: 8.8

**EPON Resin 1007-HT-55:**

% weight Solids: 55  
Solvents: PGME/Toluene 50:50  
Viscosity Gardner-Holdt: Z-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 1700-3000  
Lbs/gal: 8.6

**EPON Resin 1007-JX-55:**

% weight Solids: 55  
Solvents: Ethyl 3-Ethoxypropionate/Xylene 50:50  
Viscosity Gardner-Holdt: Z1-Z6  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 1700-2300  
Lbs/gal: 8.8

**EPON Resin 1009-DU-40:**

% weight Solids: 40  
Solvents: DAA/CYCLO SOL 53 50:50  
Viscosity Gardner-Holdt: W-Z1  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 2300-3800  
Lbs/gal: 8.3

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):****EPON Resins--Specialties and Multifunctional Resins:****EPON Resin 825:**

Viscosity poise: 50-65  
Color Gardner Max: 1  
Epoxide Equivalent Weight: 175-180  
Lbs/gal: 9.7

**EPON Resin 834:**

Viscosity Gardner-Holdt: O-V  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 230-280  
Lbs/gal: 9.7

**EPON Resin 836:**

Viscosity Gardner-Holdt: L-U  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 290-335  
Lbs/gal: 9.7

**EPON Resin 871 (Flexible):**

Viscosity poise: 4-9  
Color Gardner Max: 12  
Epoxide Equivalent Weight: 390-490  
Lbs/gal: 8.2

**EPON Resin 872 (Flexible):**

Viscosity poise: 15-38  
Color Gardner Max: 10  
Epoxide Equivalent Weight: 650-750  
Lbs/gal: 9.0

**EPON Resin 872-X-75 (Flexible Resin Solution):**

Viscosity poise: 20-28  
Color Gardner Max: 6  
Epoxide Equivalent Weight: 625-700  
%w Solids: 75  
Lbs/gal: 8.5

**EPON Resin 1031 (Multifunctional):**

Viscosity Gardner-Holdt: Z2-Z7  
Epoxide Equivalent Weight: 200-240  
Lbs/gal: 10.4

**EPON Resin 1031-B-80 (Multifunctional):**

Viscosity Gardner-Holdt: Z2-Z7  
Epoxide Equivalent Weight: 200-240  
%w Solids: 80  
Lbs/gal: 9.6

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**EPON Resins--Specialties and Multifunctional Resins  
(Continued):**

**EPON Resin 1031-A-70 (Multifunctional):**

Viscosity Gardner-Holdt: D-I  
Epoxide Equivalent Weight: 200-240  
%w Solids: 70  
Lbs/gal: 9.1

**EPON Resin DPL-862 (Epoxy Bisphenol F Resin):**

Viscosity poise: 30-45  
Color Gardner Max: 2  
Epoxide Equivalent Weight: 166-177  
Lbs/gal: 9.9

**EPON Resin DPS-155 (Epoxy Phenolic Novolac):**

Viscosity poise: 2.5-4.0  
Color Gardner Max: 3  
Epoxide Equivalent Weight: 174-180  
Lbs/gal: 10.2

**EPON Resin DPS-164 (Epoxy Cresylic Novolac):**

Viscosity poise: 35-50  
Color Gardner Max: 6  
Epoxide Equivalent Weight: 200-240  
Lbs/gal: 10.3

**EPONOL Resins:**

**EPONOL Resin 53-L-32:**

%w Solids: 32  
Solvent: Cellosolve Acetate  
Viscosity Gardner-Holdt: Z-Z5  
Color Gardner Max: 6  
Lbs/gal: 8.7

**EPONOL Resin 55-L-32:**

%w Solids: 32  
Solvent: Cellosolve Acetate  
Viscosity Gardner-Holdt: Z4-Z8  
Color Gardner Max: 6  
Lbs/gal: 8.7

**EPONOL Resin 53-BH-35:**

%w Solids: 35  
Solvent: MEK/PGME 75:25  
Viscosity Gardner-Holdt: U-Z2  
Color Gardner Max: 6  
Lbs/gal: 7.8

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):****EPONOL Resin 55-BH-30:**

%w Solids: 30  
Solvent: MEK/PGME 75:25  
Viscosity Gardner-Holdt: W-Z  
Color Gardner Max: 6  
Lbs/gal: 7.7

**EPONOL Resin 53-J-32:**

%w Solids: 32  
Solvent: Ethyl 3-Ethoxypropionate (EEP)/  
N-Methyl Pyrrolidone (NMP) 97:3  
Viscosity Gardner-Holdt: Z-Z4  
Color Gardner Max: 6  
Lbs/gal: 8.5

**EPONOL Resin 55-J-32:**

%w Solids: 32  
Solvent: EEP/NMP 97:3  
Viscosity Gardner-Holdt: Z4-Z8  
Color Gardner Max: 6  
Lbs/gal: 8.5

**Bisphenol A:****SHELL BPA-154 (Resin Grade):**

Freezing Point C, Min: 153.5  
Free Phenol %w Max: 0.2  
Iron Content ppm Max: 1.5  
Color Pt-Co Max: 100

**SHELL BPA-157 (Polymer Grade):**

Freezing Point C, Min: 156.5  
Free Phenol %w Max: 0.02  
Iron Content ppm Max: 1.0  
Color Pt-Co Max: 40

**SHELL CHEMICAL CO.: EPON Resins and Resin Solutions (Continued):**

**Intermediates/Diluents:**

**Butyl Glycidyl Ether:**

Epoxide Equivalent Weight: 130-135

Viscosity centipoise: 3 max.

Color Gardner Max: 1

Lbs/gal: 7.67

Viscosity centipoise: 1.3

Color Gardner: 1

**CARDURA E-10:**

Epoxide Equivalent Weight: 244-256

Viscosity centipoise: 5-10

Color Gardner Max: 2

Lbs/gal: 8.02

Viscosity centipoise: 7.1

Color Gardner: 1

**VV 10:**

Color Gardner Max: 1

Lbs/gal: 7.34

Viscosity centipoise: 1.9

Color Gardner: 1



**SHELL CHEMICAL CO.: EPONEX Resins:**

**Weatherability:**

EPONEX resins are designed to be formulated into chalk and yellow resistant coatings with outstanding gloss retention compared to conventional epoxy resins.

**Low viscosity:**

The low viscosity of EPONEX resins offers the potential of formulating high solids and solventless coatings to meet environmental restrictions.

**Energy efficiency:**

Ambient-cure and low bake coatings with epoxy properties and good exterior durability are now possible.

**Typical properties of EPONEX resins:**

Weight per epoxide (WPE): 232-238  
Viscosity, poise, 25C: 20-25  
Color, Gardner: 1-2  
Weight/volume, lbs/U.S. gal.: 9.08

**EPONEX Resin DRH-151:**

Recommended specifically as a building block resin for preparation of low viscosity coating resins by reaction with Bisphenol-A, low viscosity esters using conventional esterification reactions, and as a diluent.

**EPONEX Resin DRH-151.1:**

Recommended for high temperature baking systems, such as melamine-formaldehyde cures or as a modifier for acrylic baking finishes.

**EPONEX Resin DRH-151.2/DRH-151.3:**

Recommended for ambient cure and low bake finishes. DRH 151.3 displays better color than 151.2.

**SHELL CHEMICAL CO.: SHELL Resins for Printed Wiring Boards:**

**EPON Resin 1120-A-80:**

Epoxide Equivalent Weight: 455-475  
Dynamic Viscosity, at 25C(77F): 0.5-1.5 (5-15)  
Color, Gardner Max: 3  
Resins Solids: 80+-1  
Bromine Content: 19-21  
Specific Gravity at 25C(77F): 1.23(10.2)  
\* Standard brominated resin

**EPON Resin 1123-A-80:**

Epoxide Equivalent Weight: 420-440  
Dynamic Viscosity, at 25C(77F): 0.8-1.8 (8-18)  
Color, Gardner Max: 3  
Resins Solids: 80+-1  
Bromine Content: 18-20.5  
Specific Gravity, at 25C(77F): 1.22(10.2)  
\* Standard brominated resin

**EPON Resin 1124-A-80:**

Epoxide Equivalent Weight: 425-445  
Dynamic Viscosity, at 25C(77F): 1.2-2.0 (12-20)  
Color, Gardner Max: 3  
Resins Solids: 80+-0.5  
Bromine Content: 18-21  
Specific Gravity, at 25C(77F): 1.22(10.2)  
\* Standard brominated resin

**EPON Resin System 1151-B-75:**

Epoxide Equivalent Weight: 345-375  
Dynamic Viscosity, at 25C(77F): 0.5-1.3 (5-13)  
Color, Gardner Max: 5  
Resins Solids: 75+-1  
Bromine Content: 11-12  
Specific Gravity, at 25C(77F): 1.15(9.6)  
\* Non-dicy cure  
\* High Tg  
\* Multi-functional resin  
\* One package system

**EPON Resin System 1151-BH-60:**

Epoxide Equivalent Weight: 345-375  
Dynamic Viscosity, at 25C(77F): 0.15-0.20 (1.5-2.0)  
Color, Gardner Max: 5  
Resins Solids: 60+-1  
Bromine Content: 11-12  
Specific Gravity, at 25C(77F): 1.11(9.3)  
\* Non-dicy cure  
\* High Tg  
\* Multi-functional resin  
\* One package system

**SHELL CHEMICAL CO.: SHELL Resins For Printed Wiring Boards  
(Continued):**

**Research Resin RSM 1212-B-60:**

Epoxide Equivalent Weight: 550-565  
Dynamic Viscosity, at 25C(77F): 0.05-0.10 (0.5-1.0)  
Color, Gardner Max: 3  
Resins Solids: 60+-1  
Bromine Content: 17-19  
Specific Gravity, at 25C(77F): 1.10(9.2)  
\* Non-dicy cure

**Research Resin RSM 1212-BH-60:**

Epoxide Equivalent Weight: 550-565  
Dynamic Viscosity, at 25C(77F): 0.10-0.20(1.0-2.0)  
Color, Gardner Max: 3  
Resins Solids: 60+-1  
Bromine Content: 17-19  
Specific Gravity, at 25C(77F): 1.10(9.2)  
\* Non-dicy cure

**EPON Resin 1001F:**

Epoxide Equivalent Weight: 450-550  
Color, Gardner Max: 3  
\* non-brominated epoxy resin  
\* Use in laminate applications where flame retardancy is  
not a requirement

# **Section II**

## **Curing Agents**

**AJINOMOTO CO., INC.: AJICURE Latent Curing Agents:**

AJICURE PN-23 and AJICURE MY-24 are characterized by providing the following features as accelerators:

- \* Easily dispersible into resins.
- \* Provide high storage stability and longer pot life.
- \* Can be cured at lower temperature in a short time, providing good cured properties.
- \* Lower skin irritation and no skin sensitization

**AJICURE PN-23:**

Appearance: Pale yellow powder  
Specific gravity: 1.28  
Softening point (C): 100-130  
Average particle size (um): 8  
pH (10% suspension): 9.2  
Solubility (g/100g, at 25C):  
Water: below 0.01  
Toluene: below 0.01  
Ethyl acetate: below 0.01  
n-Butanol: below 0.01  
IPA: below 0.01  
Methyl cellosolve: below 0.01  
MEK: below 0.01  
Cresol: over 0.5  
NMP: over 20  
DMSO: over 25

**AJICURE MY-24:**

Appearance: Pale yellow powder  
Specific gravity: 1.27  
Softening point (C): 100-130  
Average particle size (um): 8  
pH (10% suspension): 8.8  
Solubility (g/100g, at 25C):  
Water: below 0.01  
Toluene: below 0.01  
Ethyl acetate: below 0.01  
n-Butanol: 0.01-0.05  
IPA: below 0.01  
Methyl cellosolve: 0.5-1.5  
MEK: below 0.01  
Cresol: over 0.5  
NMP: 0.05-0.1  
DMSO: 0.01-0.05

**AJINOMOTO U.S.A., INC.: YSE-CURE Epoxy Curing Agents:**

**F-100:**

Chemical Type: Original Amine  
Color APHA or G (max): 100  
Characteristics & Typical Applications:  
Raw material for YSE-CURE and Various imide compounds.

**Standard Grades:**

**B-001:**

Chemical Type: Amine adduct  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 65-125  
Amine Value mg KOH/g: 266-286  
Characteristics & Typical Applications:  
Flexible; Adhesives and Coatings

**B-002:**

Chemical Type: Amine adduct  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 20-60  
Amine Value mg KOH/g: 317-337  
Characteristics & Typical Applications:  
Low toxicity; Coating, Flooring and Casting

**B-002W:**

Chemical Type: Amine adduct  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 20-60  
Amine Value mg KOH/g: 317-337  
Characteristics & Typical Applications:  
Anti-crystallization type of B-002

**B-003:**

Chemical Type: Amine adduct  
Color APHA or G (max): 70  
Viscosity ps @ 20C: 20-60  
Amine Value mg KOH/g: 317-337  
Characteristics & Typical Applications:  
Special colorless clear type of B-002

**C-002:**

Chemical Type: Amine adduct  
Color APHA or G (max): 300  
Viscosity ps @ 20C: 70-130  
Amine Value mg KOH/g: 293-313  
Characteristics & Typical Applications:  
Acid resistance; Lining and Adhesives

**AJINOMOTO U.S.A., INC.: YSE-CURE Epoxy Curing Agents (Continued):**

**Standard Grades (Continued):**

**N-001:**

Chemical Type: Amine adduct  
Color APHA or G (max): 300  
Viscosity ps @ 20C: 25-41  
Amine Value mg KOH/g: 330-350  
Characteristics & Typical Applications:  
Low toxicity; Potting for Electrical Use

**N-002:**

Chemical Type: Amine adduct  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 7-27  
Amine Value mg KOH/g: 358-378  
Characteristics & Typical Applications:  
Low toxicity; Potting for Electrical Use

**Special Grades:**

**RX-2:**

Accelerated modified amine  
Color APHA or G (max): 18  
Viscosity ps @ 20C: 10-40  
Amine Value mg KOH/g: 240-260  
Characteristics & Typical Applications:  
Fast cure; Lining and Adhesives

**RX-3:**

Accelerated modified amine  
Color APHA or G (max): 6  
Viscosity ps @ 20C: 5-12  
Amine Value mg KOH/g: 335-355  
Characteristics & Typical Applications:  
Fast cure; Lining and Flooring

**QX-2:**

Thiourea condensation  
Color APHA or G (max): 10  
Viscosity ps: 70-180/40C  
Amine Value mg KOH/g: 265-305  
Characteristics & Typical Applications:  
Fast cure; Lining, Adhesives and Putty

**AJINOMOTO U.S.A., INC.: YSE-CURE Epoxy Curing Agents (Continued):****Special Grades (Continued):****QX-3:**

Thiourea condensation  
Color APHA or G (max): 10  
Viscosity ps @ 20C: 25-65  
Amine Value mg KOH/g: 375-415  
Characteristics & Typical Applications:  
Fast cure; Lining, Adhesives and Putty

**LX-1N:**

Modified amine  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 1-3  
Amine Value mg KOH/g: 480-520  
Characteristics & Typical Applications:  
Heat and Chemical Resistance; Lining and Potting

**LX-2S:**

Modified amine  
Color APHA or G (max): 14  
Viscosity ps @ 20C: 6-15  
Amine Value mg KOH/g: 265-305  
Characteristics & Typical Applications:  
Flexible; Adhesives, Grout and Coating

**PX-3:**

Modified amine  
Color APHA or G (max): 18  
Viscosity ps @ 20C: 5-35  
Amine Value mg KOH/g: 250-350  
Characteristics & Typical Applications:  
Inexpensive; Grout and Lining (Tar-epoxy)

**S-002:**

Amine adduct solution  
Color APHA or G (max): 200  
Viscosity ps @ 20C: 40-120  
Amine Value mg KOH/g: 81-93  
Characteristics & Typical Applications:  
Excellent adhesion; Primer for metal, concrete, mortar  
and wood



**ANHYDRIDES AND CHEMICALS INC.: Anhydride Epoxy Systems:**

**Dodecenyl Succinic Anhydride:**

Dodecenyl Succinic Anhydride (DDSA) is unique among the liquid anhydride hardeners. It provides a long pot life, semi-flexible epoxy compound with improved electrical properties. There is no cracking or separation of resin from metal over a wide range of temperatures. Physical and electrical properties of the cured formulation are superior to epoxy resins cured with di-amines or polyamides.

Molecular Weight: 266

Neutralization Equivalent: 131.0-137.0

Acidity (as Dodecenyl Succinic Acid): 2% Max.

Refractive Index N20D: 1.470-1.480

Color, Gardner: 6 Max.

Clear light yellow liquid

**Methyl Tetrahydro Phthalic Anhydride:**

**AC-220J/AC-75:**

The series of Methyl Tetrahydro Phthalic Anhydrides (MTHPA are extremely versatile liquid anhydride hardeners for epoxy resins.) They are used in glass filament winding of structures such as pipes, tanks, and electrical insulation tubing. They are also used in the glass pultrusion of solid shapes such as rods for electrical and structural applications.

Another major application of the MTHPA's is in the formulation of epoxy potting, casting, vacuum impregnation, and encapsulation compounds which are subjected to very high voltages at high temperatures.

Since the MTHPA's are characterized by some 19 isomers, this series represents special blends of these isomers which are designed to bring out optimum physical and electrical properties coupled with low viscosities and water white colors.

**AC 220-J:**

Appearance: Water White Liquid

Color, Gardner, max: 1

Specific Gravity: 1.21+-0.01

Viscosity, cps, 25C: 50-80

Neutralization Equivalent: 81-85

Freezing Point, C: Below -10

**AC-75:**

Appearance: Straw Colored Liquid

Color, Gardner, max: 5

Specific Gravity: 1.21+-0.01

Viscosity, cps, 25C: 55-75

Neutralization Equivalent: 82-86

Freezing Point, C: Below -15

**ANHYDRIDES & CHEMICALS, INC.: Anhydride Epoxy Systems  
(Continued):**

**Hexahydro Phthalic Anhydride:**

Hexahydro Phthalic Anhydride (HHPA) is an anhydride hardener for epoxy resins. It is used as a molten liquid at temperatures slightly above room temperature. HHPA provides castings and impregnating formulations of outstanding electrical properties and exterior durability. Mechanical properties and chemical resistance of the cured products are also excellent.

Molecular Weight: 154  
Solidification Point: 34.0C Min.  
Iodine Value: 1.0 Max.  
Neutralization Value: 710-740  
Color (APHA): 50 Max.

**Methyl Hexahydro Phthalic Anhydride (MHHPA):**

Methyl Hexahydro Phthalic Anhydride is a water white liquid anhydride which is used in place of Hexahydro Phthalic Anhydride (HHPA) when it is preferable to use a liquid rather than a solid which requires melting. The viscosity of MHHPA (30 cps at 40C) is lower than that of HHPA (70 cps at 40C).

Molecular Weight: 168  
Freezing Point: Less than -15 C  
Iodine Value: 1.0 max.  
Neutralization Value: 660  
Color (APHA): 50 max.

**AC-METHYL:**

AC-METHYL is a liquid anhydride hardener for epoxy resins. AC-METHYL provides very high heat deflection temperatures coupled with excellent mechanical, chemical, and electrical properties.

Appearance: Liquid  
Specific Gravity, 25C: 1.23+-0.02  
Color (Gardner-Holdt): 2  
Viscosity, cps, 25C: 150-300  
Neutralization Equivalent: 88-93  
Molecular Weight: 178

**Succinic Anhydride:**

White flakes  
Purity, %: 99.5 min.  
Color, Molten, Hazen: 200 max  
Crystallization Point, C: 118.2 min.  
Maleic Anhydride Content, %: 0.2 max.  
Chlorides, %: 0.015 max  
Sulphates, %: 0.04 max  
Heavy Metals, %: 0.002 max

**ANHYDRIDES AND CHEMICALS INC.: Anhydride Epoxy Systems  
(Continued):**

**AC-32 Dianhydride:**

AC-32 is a dianhydride with the appearance of a resin.

Appearance: Resinous solid

Melting Range, C: 60-80

Average Molecular Weight: 470-480

AC-32 is a unique dianhydride. It combines:

1. A low melting point with no fuming or sublimation.
2. The excellent reactivity of a dianhydride.
3. Easy grindability
4. The ability to blend with liquid anhydrides.
5. Solubility in a wide variety of solvents.

**AC-DP:**

AC-DP is a product of advanced technology. It provides superior physical, electrical, and chemical properties, along with improved thermal aging and moisture resistance.

Dark brown viscous liquid

Viscosity, cps: 11,000-13,000

Density: 1.3

Refractive Index: 1.510-1.520

**PSPA:**

(Poly Sebacic Poly Anhydride)

PSPA is a polymeric anhydride epoxy curing agent which is used for electrical potting and encapsulation, and for high heat resistant ablative baked coatings. PSPA is also recommended for the formulation of epoxy transfer molding compounds and electrostatic spray coatings.

PSPA can cure epoxy resins without the use of tertiary amines or other accelerators. Long pot life at elevated temperatures is achieved and the ideal of a one package epoxy system is approached.

Appearance: Tan, fused, waxy solid

Melting Point, C: 72-82

Specific Gravity (80-85C): 1.0-1.1

% Anhydride: 34.0 min.

% Free Acid: 5.0 max.

**PAPA:**

Poly Azelaic Poly Anhydride

Poly Azelaic Poly Anhydride (PAPA) is a whitish, wax-like solid with a melting point of 50-65C.

% Anhydride, min.: 35.0

% Free Acid, max.: 7.0

Melting Point, C: 50-65

**ANHYDRIDES AND CHEMICALS INC.: Anhydride Epoxy Systems  
(Continued):****AC-39:**

AC-39 is a liquid anhydride which imparts a high degree of flexibility to an epoxy resin, thereby providing excellent thermal shock properties to the cured product.

Light yellow liquid

Viscosity, 25C, cps: 1500-2200

Specific Gravity, 25C: 1.002-1.006

Equivalent Weight: 500

% Anhydride: 13.3-16.7

% Free Acid: 2.8-4.2

**BDMA:**

(N,N Dimethyl Benzylamine)

Appearance: Pale yellow liquid

Color, Gardner: Less than 2

Moisture Content: Less than 0.5%

Boiling Point, Atmospheric: 180C

Density at 20C: 0.900

Vapor Pressure, 20C: 1.8 mm

Flash Point: 55C

Odor: Ammoniacal

Molecular Weight: 135

**AC-PI:**

Imidazole Accelerator

Appearance: Liquid

Molecular Weight: 110

Color: Brown

Specific Gravity, 20C: 1.015

Melting Point: 10C

Solubility: Soluble in methanol, ethanol, acetone, toluene

AC-PI is a proprietary imidazole which is equally effective as 2,4 EMI, but at a much lower cost.

**AC-10 & AC-30:**

Accelerators

**AC-10:**

Amber Liquid

Odor: Phenolic

Specific Gravity, 25C: 1.023

Flash Point: Above 100C

Refractive Index: 1.530

Distillation Range: 78% at 80-230C under 2mm Hg

**AC-30:**

Amber Liquid

Odor: Amine

Specific Gravity, 25C: 0.973

Flash Point: Above 150C

Refractive Index: 1.514

Distillation Range: 96% at 130-160C under 1mm Hg

**BASF CORP.: LAROMIN Amine Hardeners:**

**LAROMIN A 327:**

Amine hardener for epoxy resins

Mass density at 23C: g/cm<sup>3</sup>: 0.928

Refractive index at 23C: 1.481-1.483

Flash point: C: 105

Viscosity at 23C: mPa-s: 6-10

Equivalent weight with respect to active hydrogen: 27

**Application:**

LAROMIN A 327 is used as a hardener for epoxy resins in solvent-based paints and also for crosslinking solvent-free coatings, mouldings, and sealing compounds.

For hardening solvent-based epoxy resin coatings, e.g. industrial and anti-corrosion paints. LAROMIN A 327 is often incorporated as an in-situ adduct.

**LAROMIN C 252:**

Amine curing agent for epoxy resins

Mass density at 23C: g/cm<sup>3</sup>: 0.915

Refractive index at 23C: 1.481-1.482

Flash point: C: 103

Viscosity at 23C: mPa-s: 5-10

Equivalent mass with respect to active hydrogen: 52

**Application:**

LAROMIN C 252 is a curing agent for epoxy resins and is intended for the production of solvent-type coatings and for crosslinking solventless coats on mouldings and castings.

It is frequently used in the form of an in-situ adduct for curing solvent-type epoxy coatings, e.g. industrial finishes, or in corrosion protection.

**LAROMIN C 260:**

Amine hardener for epoxy resins

Mass density at 23C: g/cm<sup>3</sup>: 0.94-0.95

Refractive index at 23C: 1.49-1.50

Flash point: C: 173

Ignition temperature: C: 275

Vapour pressure at 23C: Pa: 8-10 -2

Equivalent weight with respect to active hydrogen: 60

Viscosity at 23C: mPas: 120+-20

**Application:**

LAROMIN C260 is used mainly for crosslinking low-viscosity liquid epoxy resins in the production of low-solvent or solvent-free coatings, mouldings, and sealing compounds in the paints, adhesives, or electrical industries. Other applications are in the building trade, patternmaking, boatbuilding and aircraft construction.

**BUFFALO COLOR CORP.: Dodecenylsuccinic Anhydride:**

2,5-Furandione, 3-(dodecenyl)dihydro-

CAS #25377-73-5

C16H26O3

Molecular weight: 266.4

**Product Specification:**

Physical appearance: Clear, light yellow, viscous liquid

Neutralization equivalent: 131-137

Dodecenylsuccinic Acid: 2.0% maximum

Color, as is (ASTM D1500): &lt;1.5

Turbidity, nephelos: 40 maximum

Refractive Index, n 25/D: 1.4730-1.4830

Permanganate consumption: 4 mL maximum/2 mL sample

**Typical Properties:**

Strength as Anhydride: 98.5-99.5%

Viscosity, at 10C: 400 centipoises

Ash: .05%

Specific gravity, 15C/4C: 1.005

Flash point (C.O.C.): 178C (352F)

**Hexahydrophthalic Anhydride:**

1,3 isobenzofurandione, hexahydro

CAS #85-42-7

C8H10O3

Molecular weight: 154.2

**Product Specification:**

Physical Appearance: Colorless to pale yellow fused solid

Strength as Anhydride: 99.0% minimum

Solidification point: 35.0C minimum

Color, Molten (Pt-Co standards): 25 maximum

Hexahydrophthalic acid: 0.5% maximum

Turbidity, Nephelos (Molten, 60C): 10 maximum

**Typical Properties:**

Specific Gravity, 40C/4C: 1.16-1.19

Potassium: 20-30 ppm

Sodium: 5-10 ppm

**BUFFALO COLOR CORP.: Methyl Hexahydrophthalic Anhydride:**

1,3-Isobenzofurandione, Hexahydro-5-methyl-

CAS# 19438-60-9

C9H12O3

Molecular weight: 168.2

Product Specification:

Physical Appearance: Clear colorless liquid

Strength as Anhydride: 99.0% minimum

Color, (Pt-Co Standards): 25 maximum

Methyl Hexahydrophthalic Acid: 0.5% maximum

Turbidity, Nephelos: 10 maximum

Typical Properties:

Specific Gravity, 25C/4C: 1.15-1.17

Typical Solidification Point: -15C maximum

Typical Viscosity (cps @ 25C): 40-70

**NADIC Methyl Anhydride:**

4,7-Methanoisobenzofuran-1,3-dione, 3a,4,7,7a-tetrahydromethyl-

CAS# 25134-21-8

C10H10O3

Molecular weight: 178.2

Product Specification:

Physical appearance: Pale yellow to tan liquid

Strength as Anhydride: 99.0% minimum

NADIC Methyl Acid: 1.0% maximum

Color, as is (Pt-Co standards): 75 maximum

Viscosity at 25C: 175 to 225 centipoises

Neutralization equivalent: 87 minimum

Refractive Index n 25/D: 1.503-1.506

Specific Gravity 20C/20C: 1.200-1.250

**Succinic Anhydride:**

2,5-Furandione, dihydro

CAS# 108-30-5

C4H4O3

Molecular weight: 100.1

Product specification:

Physical appearance: White flakes

Solidification point: 118.3C minimum

Color, Molten (Pt-Co standards): 200 maximum

Typical Properties:

Strength as Anhydride: 97.0-98.0%

Total acidity, as Succinic Anhydride: 99.6-99.8%

Specific Gravity, 120C/4C: 1.24

Turbidity, nephelos (Molten): 10

Chlorides: 0.015%

Sulfates: 0.04%

Ash: 100 ppm

Heavy Metals (as lead): 2 ppm

Arsenic: 1 ppm

Unsaturates (as Maleic Acid Anhydride): 0.05%

Free acidity (as Succinic Acid): 2-3%

**CIBA-GEIGY CORP.: Accelerators:****DY 062:**

Description: BDMA

Visc. @ 25C cp: Like water

Mix Ratio w/ARALDITE 6010: 0.5-10.0 phr

Color (Gardner) Max.: Water white

Benzyl dimethyl amine (BDMA)-tertiary amine accelerator.

Compatible with anhydride and polyamide. Very fast accelerator.

**DY 064:**

Description: DMP-30

Visc. @ 25C cp: 160-240

Mix Ratio w/ARALDITE 6010: 0.5-10.0

Color (Gardner) Max.: Dark red

Tri(dimethylamino methyl) phenol.

**DY 069:**

Description: Amine and phenol containing.

Visc. @ 25C cp: 6-10

Mix Ratio w/araldite 6010: 0.1-0.4

Color (Gardner) Max.: 12 max.

Fast accelerator, slower full cure (completion). Prevents fillers from settling out due to slower full cure. For castings, filament winding impregnation.

**DY 070:**

Description: Heterocyclic amine

Visc. @ 25C cp: Like water

Mix Ratio w/ARALDITE 6010: 0.5-1.0

Color (Gardner) Max.: 3 max.

Rapid accelerator used with cycloaliphatics and GY 6010 type resins. Small castings, filament winding.

**DY 071:**

Description: Organometallic amine containing

Visc. @ 25C cp: 200-600

Mix Ratio w/ARALDITE 6010: 0.5-3.0

Moderately reactive.

**DY 073:**

Amine phenol complex contains free phenol

Visc. @ 25C cp: Like water

Mix Ratio w/ARALDITE 6010: 0.5

Slower reactivity for large castings.



**CIBA-GEIGY CORP.: Accelerators (Continued):**

**XU DY 183:**

Description: Organometallic amine containing  
Visc. @ 25C cp: 5,000-10,000  
Color (Gardner) Max.: Dark Brown  
Moderately fast accelerator, more uniform exotherms. Good  
for large castings (masses). Used with cycloaliphatics/  
carboxylic/anhydride cured systems.

**DY 9577:**

Description: BCl<sub>3</sub> amine complex  
Visc.: 26-30C (melting point)  
Mix Ratio w/ARALDITE 6010: 0.5-1.0  
Color (Gardner) Max.: Yellowish brown semi-solid  
Castings, filament winding, VPI. Latent @ RT w/ARALDITE GY  
6010.

**DT 3126:**

Description: Solid  
Visc.: 70-80C (melting point)  
Mix Ratio w/ARALDITE 6010: 2-3%  
Color (Gardner) Max.: Opaque granulate  
Powder coating accelerator for epoxy/COOH functional  
polyesters.

**CIBA-GEIGY CORP.: Aliphatic Amines:****XU HY 356:**

Description: Solvent-free RT cure  
Visc. @ 25C cp: 1,763 typical  
Tack free @ RT (Pot life - hrs:min): 2:30 (0:40)  
Mix Ratio w/ARALDITE 6010, PHR: 35  
Appx. Equiv. Weight: H+ 57  
Color (Gardner) Max.: 3  
Applications: HY 837 without catalyst.

**HY 837:**

Description: Solvent-free RT cure  
Visc. @ 25C: 2,700-3,700  
Tack free @ RT (Pot life-hrs:min): 1:30 (0:20)  
Mix Ratio w/ARALDITE 6010, PHR: 35  
Appx. Equiv. Weight: H+ 68  
Min RT Cure, Days: 3  
Color (Gardner) Max.: 3  
Applications: Clear wood, linings, accelerator for polyamides, flooring.  
Excellent chemical resistance, high reactivity. High gloss, excellent adhesion.

**HY 943:**

Description: Solvent-free RT cure  
Visc. @ 25C cp: 3,300-6,000  
Tack free @ RT (Pot life-hrs:min): 2-3:00 (0:15)  
Mix Ratio w/ARALDITE 6010, PHR: 20  
Appx. Equiv. Weight: H+ 38  
Min. RT Cure, Days: 7  
Color (Gardner) Max.: 2-3  
Applications: Tank lining, chem. process equipment  
Excellent chemical, alcohol, gasohol, solvent resistance.

**HY 956:**

Description: Solvent-free RT cure  
Visc. @ 25C cps: 290-500  
Tack free @ RT (Pot life-hrs:min): (0.35)  
Mix Ratio w/ARALDITE 6010, PHR: 25  
Appx. Equiv. Weight: H+ 47  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 3  
Applications: Adhesives, castings, potting, tooling, laminating, coatings.  
Low shrinkage, excellent dimensional stability, good electricals.

**CIBA-GEIGY CORP.: Aliphatic Amines (Continued):**

**XU HY 371:**

Description: Solvent-free RT cure  
Visc. @ 25C cp: J-N (bubble viscosity)  
Tack free @ RT (Pot life-hrs:min): 5:06 (0:30)  
Mix Ratio w/ARALDITE 6010, PHR: 66  
Appx. Equiv. Weight: H+ 124 (theory)  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 1  
Applications: Low maintenance (40) curing for maintenance coatings.  
Low viscosity, Low temperature performance.

**HY 2992:**

Description: Solvent-free RT cure  
Visc. @ 25C cp: 15-20  
Tack free @ RT (Pot life-hrs:min): (0:12)  
Mix Ratio w/ARALDITE 6010, PHR: 29  
Appx. Equiv. Weight: H+ 55  
Min RT Cure, Days: 3  
Color (Gardner) Max.: 4  
Applications: Injection Systems  
Rapid property development (not to be used in thin film coatings)

**CIBA-GEIGY CORP.: Anhydrides:****HY 225:**

Solvent-free modified anhydride

Visc. @ 25C cp: 1,500-3,500

Mix Ratio (w/ARALDITE CY 225 resin): 80 phr

Min RT Cure, Days: 6-10 hrs. @ 140C

Applications: Used with liquid Bis A epoxy resin CY225 for castings, low Tg.

Indoor flexibilized anhydride.

**HY 905:**

Solvent-free Pale yellow liquid

Visc. @ 25C cp: 150-230

Mix Ratio w/ARALDITE 6010, PHR: 100

% Anhydride (anhydride eq. wt.): 94 min.

Min RT Cure, Days: 48 hrs. @ 120C

1-2 hrs. @ 200C accelerated

Applications: Used with liquid Bis A epoxy resin ARALDITE

GY 9579 for transformers, low Tg.

Indoor flexiblized anhydride.

**HY 906:**

NMA

Visc. @ 25C cp: 175-275

Tack free @ RT (Pot life-hrs:min): (less than 1 hr. at 100C)

Mix Ratio w/ARALDITE 6010, PHR: 85.5

% Anhydride (anhydride eq. wt.): 99 min. (178)

Min RT Cure, Days: 4 hrs. @ 79C plus 15 hrs @ 149C accelerated

Color (Gardner) Max.: 3

Applications: Castings, filament windings, higher Tg.

Methylene 4-endomethylene-tetrahydrophthalic anhydride

(nadic methyl anhydride).

**HT 907:**

HHPA White solid

Visc. @ 25C cp: 35-38C (melting point)

40-50 cPs @ 40C

Mix Ratio w/ARALDITE 6010, PHR: 85

% Anhydride (anhydride eq. wt.): (154)

Min RT Cure, Days: 2 hrs. @ 80C

1 hr. @ 150C accelerated

Applications: Outdoor products, casting.

Use 1/1 with cycloaliphatic resin ARALDITE CY 184. Good electrical/mechanical properties.

**CIBA-GEIGY CORP.: Anhydrides (Continued):**

**HY 920:**

Liquid flexibilized anhydride.

Visc. @ 25C cp: 4,500-6,500

Mix Ratio w/ARALDITE 6010, PHR: 100-120 w/CY 184

Min RT Cure, Days: 4 hrs @ 80C + 4 hrs. @ 140 accelerated

Color (Gardner) Max.: 10

Applications: Castings, impregnating indoor and outdoor electrical areas.

Weatherable, excellent low temperature flexibility. Used

**HY 925:**

Liquid flexibilized anhydride.

Visc. @ 25C cp: 250-550

Mix Ratio w/ARALDITE 6010, PHR: 80 w/CY 225

Min RT Cure, Days: 6 hrs. @ 80C

10-15 hrs @ 130C

Applications: Castings, impregnating indoor and outdoor electrical areas.

Higher Tg than HY 905.

**CIBA-GEIGY CORP.: Aromatic Amines:****XU 205:**

Description: Solvent-free Heat cure  
 Visc. @ 25C cp: 2,000-5,000  
 Mix Ratio w/ARALDITE 6010, PHR: 32  
 Appx. Equiv. Weight: H+ 54-58  
 Min RT Cure, Days: 2 hrs. 80C + 4 hrs. 150C  
 Color (Gardner) Max.: dark red  
 Applications: Filament winding, tooling, structural laminates, adhesives.  
 Noncrystallizing, low exotherm, low shrinkage, long pot life, non-staining.

**XU HY 264:**

Description: Solvent-free R.T. cure  
 Visc. @ 25C cp: 3,000-4,500  
 Tack free @ RT (Pot life-hrs:min): 4:00 (0:38)  
 Mix Ratio w/ARALDITE 6010, PHR: 46  
 Appx. Equiv. Weight: H+ 82.7  
 Min RT Cure, Days: 7-10  
 Color (Gardner) Max.: 15  
 Applications: Chemical plants, tank linings, floors in aggressive environments, SO2 scrubbers.  
 High acid resistance at elevated temperatures, resistance to thermal shock.

**XU HY 350:**

Description: Solvent-free Heat Cured  
 Visc. @ 25C cp: 2,000-5,000  
 Tack free @ RT (Pot life-hrs:min): 0.14 @ 150C  
 Mix Ratio w/ARALDITE 6010, PHR: 34  
 Appx. Equiv. Weight: H+ 61-66  
 Min RT Cure, Days: 2 hrs. 150C  
 Color (Gardner) Max.: 18  
 Applications: Adhesives, filament winding, structural laminates, tooling.  
 No free MDA, non crystallizing and staining, low exotherm and shrinkage.

**HY 830:**

Description: Solvent-free R.T. Cure  
 Visc. @ 25C, cp: 3,000-6,000  
 Tack free @ RT (Pot life-hrs:min): (8-10:00)  
 Mix Ratio w/ARALDITE 6010, PHR: 60  
 Appx. Equiv. Weight: H+ 112  
 Min RT Cure, Days: 7  
 Color (Gardner) Max.: Dark  
 Applications: Tank linings, linings for concrete and metal pipe, marine, concrete structures.  
 Cures under water, abrasion resistance, chemical resistance, no blushing.

**CIBA-GEIGY CORP.: Aromatic Amines (Continued):**

**HY 850:**

Description: Solvent-free R.T. Cure  
Visc. @ 25C cp: 18,000-25,000  
Tack free @ RT (Pot life-hrs:min): (0:30-0:50)  
Mix Ratio w/ARALDITE 6010, PHR: 60  
Appx. Equiv. Weight: H+ 112  
Min. RT Cure, Days: 3-7  
Color (Gardner) Max.: Dark  
Applications: Same as HY 830  
Faster than HY 830.

**HT 972:**

Description: MDA  
Visc. @ 25C cp: 88-92C  
Mix Ratio w/ARALDITE 6010, PHR: 27  
Appx. Equiv. Weight: H+ 49  
Min RT Cure, Days: 1 hr. @ 140C/30 hrs. @ 60C  
Applications: Castings, moldings, adhesives, tooling,  
laminating, filament winding.  
4,4'-diamino diphenyl methane (methylene dianiline). High  
temperature performance.

**HT 9698:**

Description: High Purity HT 972  
Mix Ratio w/ARALDITE 6010, PHR: 99.5% MDA by weight  
Applications: same as HT 972.  
Characteristics: same as HT 972.

**HT 976:**

Description: DDS Rough ground powder  
Visc.: (melting point): 174-178C  
Tack free @ RT (Pot life-hrs:min): (3 hrs @ 100C)  
Mix Ratio w/ARALDITE 6010, PHR: 36  
Appx. Equiv. Weight: H+ 63  
Min RT Cure, Days: 4 hrs. @ 175C/24 hrs. @ 120C  
Applications: Adhesives, PWB laminates, prepregs, composites.  
4,4'-diaminodiphenyl sulfone "DAPS" EPORAL. Excellent high  
temperature and chemical resistance.

**HT 9664:**

Description: Ground HT 976  
Visc.: (melting point) 174-178C  
Mix Ratio w/ARALDITE 6010, PHR: 36  
Appx. Equiv. Weight: H+ 63  
Min RT Cure, Days: same as HT 976  
Applications: same as HT 976.  
Characteristics: Same as HT 976.

**CIBA-GEIGY CORP.: Aromatic Amines (Continued):****HT 9719:**

Description: Micropulverized 9720  
Visc.: (melting point) 174-178C  
Mix Ratio w/ARALDITE 6010, PHR: 36  
Appx. Equiv. Weight: H+ 63  
Min RT cure, Days: same as HT 976  
Applications: Composites, adhesives.  
3,3'-diaminodiphenyl sulfone w/lower melt.

**HT 9720:**

Description: 3,3' DDS rough ground  
Visc.: (melting point) 174-178C  
Mix Ratio w/ARALDITE 6010, PHR: 36  
Appx. Equiv. Weight: H+ 63  
Min. RT Cure, Days: same as HT 976  
Applications: Composites, adhesives  
Characteristics: same as HT 9719.

**HT 2969:**

Description: Solvent-free R.T. Cure  
Visc. @ 25C: 700-900  
Tack Free @ RT (Pot life-hrs:min): 4:00 (2:30)  
Mix Ratio w/ARALDITE 6010, PHR: 60  
Appx. Equiv. Weight: H+ 115  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 12  
Applications: Gasoline and fuel tank linings, metal,  
concrete and asbestos, cement pipes, chemical plants.  
Long pot life, excellent chemical resistance. Low viscosity.

**XB 3075:**

Description: Solvent-free R.T. Cure  
Visc. @ 25C cp: 150 typical  
Tack free @ RT (pot life-hrs:min): 4:00 (1:00)  
Mix Ratio w/ARALDITE 6010, PHR: 28  
Appx. Equiv. Weight: H+ 54  
Min. RT Cure, Days: 7  
Color (Gardner) Max.: 5  
Applications: Tank linings, floor finishes.  
Outstanding alcohol, aromatic solvent resistance. Low  
viscosity, light color.



**CIBA-GEIGY CORP.: Cycloaliphatic Amines:**

**XU HY 265:**

Description: Solvent-free R.T. cure  
Visc. @ 25C, cp: 2,700-10,000  
Tack free @ RT (Pot life-hrs:min): 3:00 (0:40)  
Mix Ratio w/ARALDITE 6010, PHR: 50  
Appx. Equiv. Weight: H+ 94  
Min RT Cure, Days: 10  
Color (Gardner) Max.: 10

Applications: Chemical storage tanks. Chemical process equipment.

Excellent chemical resistance. Exceptional H2SO4 (96-98%) resistance.

**XU HY 355:**

Description: Solvent-free R.T. cure  
Visc. @ 25C cp: 250-400  
Tack free @ RT (Pot life: hrs:min): 2:15 (0:30)  
Mix Ratio w/ARALDITE 6010, PHR: 26  
Appx. Equiv. Weight: H+ 48.5  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 12

Applications: Tank linings, refineries, flooring, ship cargo tanks.

Outstanding solvent resistance, high temperature service.

**HY 2964:**

Description: Solvent-free R.T. cure  
Visc. @ 25C cp: 40-70  
Tack free @ RT (Pot life-hrs:min): 3:00 (0:35)  
Mix Ratio w/ARALDITE 6010, PHR: 50  
Appx. Equiv. Weight: H+ 92-95  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 2

Applications: Mortar and floor repair, sewage treatment plants.

Low viscosity, light color, blush resistant, exudation resistant, low temperature cure.

**CIBA-GEIGY CORP.: IRGACURE 261 Cationic Photoinitiator:**

**Radical:**

Resin: Acrylates  
Initiation by: Radicals  
Cure Rate: Fast  
Post Curing: Negligible  
Oxygen Inhibition: Yes

**Cationic:**

Resin: Epoxies  
Initiation by: Acid  
Cure Rate: Medium  
Post Curing: Strong  
Oxygen Inhibition: No

**IRGACURE 261 Cationic Applications:**

Mode of Action: Formation of Lewis Acid Upon Irradiation  
Applications: Coatings for paper, metal & plastics  
Screen printing inks  
Adhesives

**IRGACURE 261 Cationic Applications Cationic Curing Techniques:**

- \* Curing with UV light and additional heat treatment (dual cure)
- \* Curing with UV light at ambient temperature

**CIBA-GEIGY CORP.: Polyamides:**

**HY 283:**

Description: Solvent-free RT Cure

Visc. @ 25C cp: 2,700-6,400

Tack free @ RT (Pot life-hrs:min): 6.00(2:30)

Mix Ratio w/ARALDITE 6010 PHR: 70-100

Appx. Equiv. Weight: 133

Min RT Cure, Days: 7-10

Color (Gardner) Max.: 7

Applications: Marine/maintenance primers, flooring, coatings.

Characteristics: Low viscosity, EPA potable H<sub>2</sub>O. No induction, excellent gloss, very good chemical resistance.

**HZ 340:**

Description: Water solution RT Cure

Visc. @ 25C cp: 13,000-23,000

Tack free @ RT (Pot life-hrs:min): 8-14:00 (1-2:00)

Mix Ratio w/ARALDITE 6010 PHR: 100-200

Appx. Equiv. Weight: 113.4

Min. RT Cure, Days: 7-14

Color (Gardner) Max.: 14

Applications: Plaster, concrete, masonry, asbestos, cement, nuclear facilities.

Characteristics: No solvent, water clean-up, good adhesion.

**HY 815:**

Description: Solvent-free RT Cure

Visc. @ 25C cp: 50,000-75,000 (40C)

Tack free @ RT (pot life-hrs:min): (8-12:00)

Mix Ratio w/ARALDITE 6010 PHR: 33-100

Appx. Equiv. Weight: 150

Min RT Cure, Days: 7

Color (Gardner) Max.: 12

Applications: Trade sale paint enamels. Industrial maintenance, FDA.

Characteristics: Superior adhesion, easily pigmented, tough.

**HZ 815 X-70:**

Description: Xylene RT Cure

Visc. @ 25C cp: 800-2,300

Tack free @ RT (Pot life-hrs:min): (24:00)

Mix Ratio w/ARALDITE 6010 PHR: 3-100 (On solids)

Appx. Equiv. Weight: 150

Min. RT Cure, Days: 7

Color (Gardner) Max.: 12

Applications: Same as HY 815.

Characteristics: Same as HY 815.

**CIBA-GEIGY CORP.: Polyamides (Continued):****HY 825:**

Description: Solvent-free RT Cure  
Visc. @ 25C cp: 8,000-12,000 (40C)  
Tack free @ RT (Pot life-hrs:min): (6-7:00)  
Mix Ratio w/ARALDITE 6010 PHR: 33-100  
Appx. Equiv. Weight: 100  
Min. RT Cure, Days: 7  
Color (Gardner) Max.: 12  
Applications: Adhesives, casting, caulking, potting,  
sealing.

Characteristics: Tough, corrosion resistant, good adhesion

**HY 840:**

Description: Solvent-free RT Cure  
Visc. @ 25C cp: 3,000-6,000 (40C)  
Tack free @ RT (Pot life-hrs:min): (3-4:00)  
Mix Ratio w/ARALDITE 6010 PHR: 33-100  
Appx. Equiv. Weight: 130  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 12  
Applications: Same as HY 815 and HY 825.  
Characteristics: Low viscosity HY 825.

**HY 955:**

Description: Solvent-free RT Cure  
Visc. @ 25C cp: 500-900  
Tack free @ RT (Pot life-hrs:min): (0:30)  
Mix Ratio w/ARALDITE 6010 PHR: 35  
Appx. Equiv. Weight: 65  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 9  
Applications: Adhesives, coatings, flooring, potting,  
wet lay-up.

Characteristics: Cure @ RT in high humidity. Bonds to  
concrete.

**HY 9130:**

Description: Solvent-free RT Cure  
Visc. @ 25C cp: 250-500  
Tack free @ RT (Pot life-hrs:min): 8-10(1-1:30)  
Mix Ratio w/ARALDITE 6010 PHR: 50  
Appx. Equiv. Weight: 95  
Min RT Cure, Days: 7  
Color (Gardner) Max.: 12  
Applications: Adhesives, sealants, flooring, coatings  
Characteristics: Low viscosity, long pot life. Good  
mechanicals.

**CIBA-GEIGY CORP.: Polyamides (Continued):**

**XU HY 360:**

Description: Solvent-free RT cure

Visc. @ 25C: 300-500

Tack free @ RT (Pot life-hrs:min): 14:18 (7:26)

Mix Ratio w/ARALDITE 6010 PHR: 59-120

Appx. Equiv. Weight: 113

Min. RT Cure, Days: 7

Color (Gardner) Max.: 7

Applications: Ultra high solids/Solventless coatings  
Maintenance & Marine primers.

Characteristics: Superior chemical resistance, Bis F comp-  
ability, excellent gloss, no blush, very good chemical resist-  
ance.

**CIBA-GEIGY CORP.: Special Hardeners:****XU HT 261:**

Solid resinous amino containing hardener.  
Visc. @ 25C cp: 101-103C (melting point)  
Mix Ratio w/ARALDITE 6010, PHR: w/ARALDITE GT 7013: 5-7  
Min RT Cure, Days: 15 min. @ 120C  
Color (Gardner) Max>: 6  
Applications: Decorative and protective powder coatings.  
Low temperature cure, high gloss.

**HT 2844:**

O-Tolyl Biguanide  
Visc. @ 25C cp: 138-148C (melting point)  
Tack free @ RT (Pot life-hrs:min): 140 sec @ 180C  
Mix Ratio w/ARALDITE 6010, PHR: 4 w/GT 7013  
Min RT Cure, Days: 20 min. @ 150C  
Applications: Decorative and protective powder coating.  
DICY type.

**HT 2932:**

Highly catalyzed difunctional phenolic type  
Visc. @ 25C cp: 75-85 (melting point)  
Tack free @ RT (Pot life-hrs:min): 50 sec. @ 200C  
Mix Ratio w/ARALDITE 6010, PHR: 35 w/GT 7013  
Appx. Equiv. Weight: 210-250  
Min RT Cure, Days: 10-20 min.  
Color (Gardner) Max.: 2  
Applications: Metal decoration, reinforcing bars, appliances.  
Fast curing.

**HT 939:**

Latent modified polyamide  
Visc.: 105C (melting point)  
Tack free @ RT (Pot life-hrs:min): 54 sec @ 150C  
300 sec @ 100C  
Mix Ratio w/ARALDITE 6010, PHR: 35  
Appx. Equiv. Weight: H+ 93  
Min RT Cure, Days: 6.5 min. 150C  
Color (Gardner) Max.: Pale yellow powder  
Applications: Adhesives, tooling, vinyl plastisols, dipping compounds

Shelf life excellent. Six month latency @ RT. Excellent adhesion, good mechanicals. High reactivity at 100C.

**HT 9506:**

Fine ground version of HT 939.  
Visc. @ 25C cp: 105C (melting point)  
Tack free @ RT (Pot life-hrs:min): 54 sec @ 150C  
300 sec @ 100C  
Mix Ratio w/ARALDITE 6010, PHR: 35  
Appx. Equiv. Weight: H+ 93  
Min RT Cure, Days: 6.5 min. 150C  
Color (Gardner) Max.: Pale yellow powder  
Applications: Adhesives, tooling, vinyl plastisols, dipping compounds.

**CIBA-GEIGY CORP.: Special Hardeners (Continued):**

**HY 940:**

Description: HT 9506 dispersed in GY 6010

Visc. @ 25C: 250,000-565,000

Tack free @ RT (Pot life-hrs:min): 54 sec @ 150C

Mix Ratio w/ARALDITE 6010, PHR: 170

Min RT Cure, Days: 5-10 min. @ 50C

Color (Gardner) Max.: Yellow opaque liquid

Applications: One-pack adhesives, tooling, sealants, dipping plasticals.

Easier to handle than HT 9506. Less tendency to absorb water.

**HZ 949U:**

Description: Phenolic Bis A heat reactive 50% solids in But-anol.

Visc. @ 25C cp: 70-170

Tack free: Latent @ RT

Mix Ratio w/ARALDITE 6010, PHR: 25-65

Min RT Cure, Days: 30 min. @ 177C/60 sec. @ 300C

Color (Gardner) Max.: 10

Applications: High performance baked industrial finishes, can/drum coatings, appliance primers.

Used with high molecular weight Bis A epoxy solution, good flexibility, sterilization and pasteurization resistance.

**XU HZ 365:**

Description: HZ 949 U type at 70% solids

Visc. @ 25C cps: 5000

Mix Ratio w/ARALDITE 6010, PHR: 20-50

Min RT Cure, Days: 30 min. @ 177C/60 sec. @ 300C

Color (Gardner) Max.: 7

Applications: High performance baked industrial finishes, can/drum coatings, appliance primers.

Used with high molecular weight Bis A epoxy solution, good flexibility, sterilization and pasteurization resistance.

**HT 9690:**

Description: O-cresol novolac (OH type)

Visc. @ 25C cp: 80-120 @ 150C

Tack free: Latent @ RT

Mix Ratio w/ARALDITE 6010, PHR: 50 w/ECN 1299

Min RT Cure, Days: 20 min @ 163C

Color (Gardner) Max.: 12

Applications: Molding, powder coatings, electrical pipe.

Latent with ECN resins, high temperature resistance.

**DY 9577:**

Description: BCl<sub>3</sub>-amine complex

Visc.: 26-30C (melting point)

Tack free @ RT (pot life-hrs:min): Latent to 80C 290 min @ 90C

Mix Ratio w/ARALDITE 6010, PHR: 3-5

Min RT cure, Days: 2 hrs @ 120C + 6 hrs @ 150C + 2 hrs @ 190C

Color (Gardner) Max.: Yellowish brown semi-solid

Applications: Castings, encapsulation, filament winding, pultrusion, molding, electrical tapes.

High reactivity above 120C, soluble in resins/hardeners. Can be used as a catalyst like BF<sub>3</sub>-MEA.

**CRAY VALLEY PRODUCTS INC.: QUICKCURE 195X Fast Drying Reactive Polyamide:**

QUICKCURE 195X has been developed to meet market demands for faster drying two-pack epoxide paint systems. It is the first of a new generation of reactive polyamides and possesses such good compatibility characteristics that it can be used with liquid as well as solid epoxy resins, giving the opportunity to formulate high solids coatings.

Polyamide cured two-pack epoxide coatings have firmly established their position in the paint industry. Paints based on polyamide cured systems have outstanding mechanical and chemical resistance properties; and these qualities, coupled with their excellent adhesion, has led to their establishment as unbeatable leaders for use in marine and heavy duty maintenance coatings. The nature of reactive polyamides is such that these curing agents will even displace water from a damp surface and adhere to the substrate. The ability to produce coatings with good adhesion also applies to surfaces where good surface preparation has not been carried out. Other advantages offered by polyamide curing agents are their low toxicity, flexible reactant ratio and long pot life.

QUICKCURE 195X for faster drying 2 pack epoxide coating systems. Use with liquid or solid epoxides for:

- \* Excellent compatibility
- \* No induction period
- \* Freedom from surface defects
- \* Fast dry
- \* High solids/High build
- \* Outstanding corrosion resistance

While giving the above advantages QUICKCURE 195X maintains the excellent mechanical and chemical resistance properties associated with conventional polyamide curing agents.

QUICKCURE 195X system cured with Liquid epoxide resin:

Drying Time at 22C: 75 minutes

Mechanical Properties:

bend test: passes 1/8"

slow indentation: 7.8mm

reverse impact: passes 1.25mm

cross cut adhesion: 100%

Vehicle solids: 58%



**CVC SPECIALTY CHEMICALS, INC.: Curing Agents/Accelerators:**

**ERISYS 24EMI:**

2-ethyl-4-methyl Imidazole

High temperature accelerator for anhydrides.

**ERISYS U-405\*:**

Phenyl Dimethyl Urea

Replacement for Diuron in latent 1 pack systems with Dicy.

Non halogenated

**ERISYS U-410\*:**

Toluene bis (dimethyl urea)

High efficiency bis urea for latent 1 pack systems with

Dicy capable of rapid cure at 250C with low exotherm

**ERSIYS U-415\*:**

Methylene bis (Phenyl dimethyl urea)

Latent bis urea with longest latency and rapid cure at 225C

**ERISYS 33DDS\*:**

3,3'-Diamino Diphenyl Sulphone

High temperature non carcinogenic aromatic diamine. Provides outstanding oxidative resistance and high flexural modulus.

\* Standard form small, flowable, noncaking crystals. Also available in Ground (70 u) and Fine (5-10 u) grades.

ERISYS is a registered trademark of CVC Specialty Chemicals, Inc.

**DOW CHEMICAL U.S.A.: Curing Agents: Aliphatic Polyamines and Adducts:****D.E.H. 20 (diethylene triamine, DETA):**

Wt. per Active H: 20.6

PHR D.E.R. 331: 10.9

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

General purpose RT curing agent. High exotherm in large mass. May blush under humid conditions.

**D.E.H. 24 (triethylene tetramine, TETA):**

Wt. per Active H: 24.4

PHR D.E.R. 331: 12.9

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

General purpose RT curing agent. High exotherm in large mass. Lower vapor pressure than D.E.H. 20.

**D.E.H. 26 (tetraethylene pentamine, TEPA):**

Wt. per Active H: 27.1

PHR D.E.R. 331: 14.3

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

RT curing agent often used in 2 package protective coating systems.

**D.E.H. 29 (amine mix):**

Wt. per Active H: 28.8

PHR D.E.R. 331: 15.4

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

Amine curing agent with low vapor pressure for safer handling. Similar in properties to D.E.H. 24 but cured samples have less tendency to blush when cured under humid conditions.

**D.E.H. 39 (amino ethyl piperazine, AEP):**

Wt. per Active H: 43

PHR D.H.R. 331: 22.7

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

Trifunctional amine with short pot life. Imparts moderate degree of flexibility and gives improved impact.

**DOW CHEMICAL U.S.A.: Curing Agents: Aliphatic Polyamines and Adducts (Continued):**

**D.E.H. 52 (amine-epoxy resin adduct):**

Wt. per Active H: 53

PHR D.E.R. 331: 28

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

Amine adduct with D.E.R. 331. Fast cure time. Viscosity 6,000-8,000 cps. Lower vapor pressure and less critical ratios offer improved handling characteristics.

**D.E.H. 58 (accelerated aliphatic amine):**

Wt. per Active H: 30

PHR D.E.R. 331: 15.8

Suggested Cure Schedule:

Gel at RT plus several days at RT or 1-2 hrs at 100C for full cure.

Source: Dow

Comments:

Amine containing an accelerator for fast reacting ambient cure systems.

**Curing Agents: Aromatic Polyamines:**

**CURITHANE 103/CURITHANE 116:**

(methylene dianiline, MDA)

Wt. per Active H: 49.5

PHR D.E.R. 331: 26.2

Suggested Cure Schedule:

Gel at 55C + 2 hrs at 125C + 2 hrs at 175C. Additional cure at 200C may improve HDT.

Source: Dow

Comments:

Aromatic polyamine with a melting point of approx. 85C. Has long pot life and imparts improved elevated temp. performance. Used in laminates, castings, and filament winding.

**Metaphenylene diamine (MPDA):**

Wt. per active H: 27

PHR D.E.R. 331: 14.3

Suggested Cure Schedule:

Gel at 55C + 2 hrs at 125C + 2 hrs at 175C.

Source: E.I. DuPont de Nemours & Co./Pacific Anchor

Comments:

Aromatic diamine with a melting point of approx. 60C. Can be used to make eutectic mix with methylene dianiline. Good elevated temp. performance. Used in laminates, castings, and filament winding.

**DOW CHEMICAL U.S.A.: Curing Agents: Aromatic Polyamines  
(Continued):**

**Diamino diphenyl sulfone (DDS or DADS):**

Wt. per Active H: 57

PHR D.E.R. 331: 30

Suggested Cure Schedule: 1 hr at 150C/3 hrs at 220C

Source: E.I. DuPont/Pacific Anchor

Comments:

Aromatic polyamine with a melting point of approx. 175C. Used in laminates. Has good B-stage shelf life. Cure may be accelerated with BF<sub>3</sub>-MEA or aliphatic amines.

**Diethyltoluene diamine:**

Wt. per Active H: 44.6

PHR D.E.R. 331: 23.6

Suggested Cure Schedule: 2 hrs at 100C

4 hrs at 175C

Source: Ethyl Corp.

Comments:

Low viscosity liquid aromatic diamine. Gives longer pot life than other aromatic amines. Low exotherm.

**Curing Agents: Anhydrides:**

**Nadic methyl anhydride (NMA):**

PHR D.E.R. 331: 60-90

Suggested Cure Schedule: 2 hrs at 90C +  
4 hrs at 165C +  
16 hrs at 200C

Source: Buffalo Color  
Anhydrides

Comments:

Liquid anhydride having long pot life at room temp. Excellent elevated temp. properties.

**Hexahydrophthalic anhydride (HHPA):**

PHR D.E.R. 331: 60-75

Suggested Cure Schedule: 2 hrs at 100C +  
2-6 hrs at 150C

Source: Anhydrides & Chemicals  
Buffalo Color  
Pacific Anchor  
Milliken Chemicals

Comments:

Low melting point solid, approx. 35C, soluble in liquid resin at room temp. Used in potting, filament windings, and clear castings.

**DOW CHEMICAL U.S.A.: Curing Agents: Anhydrides (Continued):**

**Trimellitic anhydride (TMA):**

PHR D.E.R. 331: 60-90

Suggested Cure Schedule: 24 hrs at 150-180C

Source: Buffalo Color  
Anhydride & Chemicals

**Comments:**

Good electrical properties, good high temperature properties. Reacts rapidly at high temperatures.

**Dodecenyl succinic anhydride (DDSA):**

PHR D.E.R. 331: 95-130

Suggested Cure Schedule: 2 hrs at 100C +  
4-6 hrs at 150C

Source: Anhydride & Chemicals  
Humphrey Chemical

**Comments:**

Liquid anhydride. Imparts flexibility to cured composition.

**Phthalic anhydride (PA):**

PHR D.E.R. 331: 40-65

Suggested Cure Schedule: 24 hrs at 120C or 8 hrs at 150C

Source: Monsanto  
Amoco  
Ashland Chemical

**Comments:**

Solid anhydride with melting point 128C. Low exotherm and long pot life. Used in large encapsulation.

**Methyl hexahydrophthalic anhydride (MHHPA):**

PHR D.E.R. 331: 60-75

Suggested Cure Schedule: 3 hrs at 100C +  
6 hrs at 140C

Source: Anhydride & Chemicals  
Pacific Anchor  
Milliken Chemicals

**Comments:**

Excellent light stability, fast gel time.

**Tetrahydrophthalic anhydride (THPA):**

PHR D.E.R. 331: 60-75

Suggested Cure Schedule: 24 hrs at 120C or 8 hrs at 150C

Source: Petro Tex  
Dixie Chemical

**Comments:**

Solid anhydride with melting point of 100C. Similar to hexahydrophthalic anhydride in cured resin properties. Used in pottings and encapsulations.

**DOW CHEMICAL U.S.A.: Curing Agents: Anhydrides (Continued):****Methyl tetrahydrophthalic anhydride (MTHPA):**

PHR D.E.R. 331: 70-90

Suggested Cure Schedule: 2 hrs at 90C +  
4 hrs at 150CSource: Anhydrides & Chemicals  
Dixie Chemical  
Lindau Chemicals**Comments:**

Liquid anhydride with higher reactivity than NMA but similar cured physical properties.

**Curing Agents: Polyamides:****Versamid 100:****Euredur 3100:****Ancamide 100:**

PHR D.E.R. 331: 70-110

Suggested Cure Schedule: RT + several days to full cure

Source: Henkel/Sherex Chemical Co./Pacific Anchor

**Comments:**

Semi-solid polyamide resin used primarily as a solvent cut solution to cure intermediate-molecular-weight epoxy resins in coating applications. Also available in solutions. Can be used to cure resins on wet substrates.

**Versamid 115:****Euredur 3115:****Ancamide 220:**

PHR D.E.R. 331: 60-100

Suggested Cure Schedule: RT gel + several days to full  
cure or 1-2 hrs at 100C

Source: Henkel/Sherex Chemical Co./Pacific Anchor

**Comments:**

High-viscosity fluid polyamide. Can be used at 100% solids by warming to reduce viscosity. Used in laminates, adhesives, potting, sealants, and coatings. Also available in solution.

**Versamid 125:****Euredur 3125:****Ancamide 260A:**

PHR D.E.R. 331: 50-100

Suggested Cure Schedule: RT gel + several days to full cure  
or 1-2 hrs at 100C

Source: Henkel/Sherex Chemical Co./Pacific Anchor

**Comments:**

Intermediate-viscosity fluid polyamide. Can be blended at RT or warmed slightly to reduce viscosity. Used in wet lay-ups, adhesives, potting, sealants, coatings, epoxy mortars, and tooling.

**DOW CHEMICAL U.S.A.: Curing Agents: Polyamides (Continued):**

**Versamid 140:**

**Euredur 3140:**

**Ancamide 350A:**

PHR D.E.R. 331: 30-70

Suggested Cure Schedule: RT gel + several days to full cure  
or 1-2 hrs at 100C

Source: Henkel/Sherex Chemical Co./Pacific Anchor

Comments:

Low-viscosity polyamide having higher heat distortion, excellent adhesion, and low shrinkage. Used in 100% solids spray applications, wet lay-ups, epoxy mortars, casting, tooling, and adhesives.

**Curing Agents: Catalytic Curing Agents:**

**Benzyl dimethylamine (BDMA):**

Source: Union Carbide Corporation

Maumee Chemical Company

Pacific Anchor

**BF3 monoethylamine (BF3-MEA):**

Source: Pacific Anchor

General Chemicals Div.

Morton-Thiokol, Inc. Alfa Products

**Dicyandiamide (DICY):**

Source: American Cyanamid Company

Pacific Anchor

**Dimethyl aminomethyl phenol:**

Source: Rohm & Haas Company

Pacific Anchor

Reichhold

**Tris(dimethyl aminomethyl) phenol:**

Source: Henkel

Rohm & Haas Company

Pacific Anchor

**Alpha methylbenzyl dimethylamine:**

Source: Union Carbide Corporation

**EMERSON & CUMING, INC.: Adhesives: Curing Agents:**

9:

General purpose, low viscosity, room temperature curing, epoxy hardener. Imparts good physical strength and chemical resistance to cured castings. Recommended for most general purpose applications.

11:

General purpose, low viscosity, elevated temperature curing, epoxy hardener. Long working life. Yields cured castings with excellent chemical resistance. Subject to partial crystallization at temperatures below 65C. (Crystals can be removed by warming gently to 65C and maintaining until all crystals have dissolved.)

15/15LV:

Easy-to-use, room temperature curing, epoxy hardeners. Hardness of cured castings can be controlled by the amount of hardener used. Long working life. Yields cured castings or adhesives having outstanding adhesion to a wide variety of substrates.

17M-1:

Very high temperature resistant, heat curing, epoxy hardener. Non-crystallizing. Long working life. Imparts excellent chemical resistance to cured castings. Recommended for applications requiring the optimum in high temperature performance.

18:

Low viscosity alternative to 15 or 15LV. Wide mixing ratio with adjustable flexibility. Long working life. Yields cured castings or adhesives with excellent adhesion to a wide variety of substrates.

21:

Non-crystallizing, low viscosity, large mass casting, epoxy hardener. Elevated temperature cure. Imparts good thermal cycle/shock and impact resistance to cured castings.

23LV:

Low color, low viscosity, room temperature curing, epoxy hardener. Long pot life. Imparts excellent thermal shock and impact resistance to cured castings. Excellent adhesion to glass.



**EMERSON & CUMING, INC.: Adhesives: Curing Agents (Continued):**

**24LV:**

Low color, low viscosity, room temperature curing, epoxy hardener. Faster curing version of 23LV. Imparts excellent thermal shock and impact resistance to cured castings. Excellent adhesion to glass. Recommended for small mass castings.

**28:**

Non-staining, non-crystallizing alternative to 11. Low viscosity. Long working life. Elevated temperature cure. Yields castings having high temperature performance and excellent chemical resistance.

**42:**

Very high temperature resistant, heat curing, epoxy curative. Can be used as sole curative or as accelerator for 17M-1. Long working life. Cured castings exhibit retention of properties at elevated temperatures and outstanding chemical resistance.

**43:**

High temperature resistant, low viscosity, room temperature gelling, epoxy hardener. Imparts excellent chemical resistance and physical properties to cured castings. Requires elevated temperature post cure to achieve ultimate high temperature performance.

**1309:**

Very fast room temperature curing, low viscosity, general purpose, epoxy hardener. Short working life. Imparts excellent chemical resistance to cured castings. Basically, a faster curing version of 9.

**B-63:**

General purpose, light color, low viscosity, epoxy hardener. Room temperature cure. Imparts good balance of mechanical, electrical and chemical resistance to cured castings. Slightly better high temperature performance than 9. Good general purpose hardener for small electrical device potting.

**B-100:**

Low shrinkage, low viscosity, room temperature curing, epoxy hardener. Yields cured castings with outstanding electrical properties and excellent chemical resistance. Good choice for structural applications.

**EMERSON & CUMING INC.: Encapsulants: Curing Agents:**

- 9:**  
General purpose, low viscosity, room temperature curing epoxy hardener. Imparts good physical strength and chemical resistance to cured castings. Recommended for most general purpose applications.
- 11:**  
General purpose, low viscosity, elevated temperature curing epoxy hardener. Long working life. Yields cured castings with excellent chemical resistance. Subject to partial crystallization at temperatures below 65C. (Crystals can be removed by warming gently to 65C and maintaining until all crystals have dissolved.)
- 15:**  
**15LV:**  
Easy-to-use, room temperature curing epoxy hardeners. Hardness of cured castings can be controlled by the amount of hardener used. Long working life. Yields cured castings or adhesives having outstanding adhesion to a wide variety of substrates.
- 17M-1:**  
Very high temperature resistant, heat curing epoxy hardener. Non-crystallizing. Long working life. Imparts excellent chemical resistance to cured castings. Recommended for applications requiring the optimum in high temperature performance.
- 18:**  
Low viscosity alternative to 15 or 15LV. Wide mixing ratio with adjustable flexibility. Long working life. Yields cured castings or adhesives with excellent adhesion to a wide variety of substrates.
- 21:**  
Non-crystallizing, low viscosity, large mass casting epoxy hardener. Elevated temperature cure. Imparts good thermal shock/cycle and impact resistance to cured castings.
- 23LV:**  
Low color, low viscosity, room temperature curing epoxy hardener. Long pot life. Imparts excellent thermal shock and impact resistance to cured castings. Excellent adhesion to glass.
- 24LV:**  
Low color, low viscosity, room temperature curing epoxy hardener. Faster curing version of 23LV. Imparts excellent thermal shock and impact resistance to cured castings. Excellent adhesion to glass. Recommended for small mass castings.

**HENKEL POLYMERS DIVISION: GENAMID Epoxy Curing Agents:**

**GENAMID 151:**

GENAMID 151 is a low viscosity amidoamine designed for reaction with solid or liquid epoxy resins. GENAMID 151 offers the same advantages as other amidoamine with one unique improvement - the added advantage of less moisture sensitivity. GENAMID 151 exhibits improved film appearance in high humidity environments.

Amine Value: 425-450  
Viscosity at 25C: 2.5-5.0 poise  
Gardner Color: 12 max.

**GENAMID 235:**

GENAMID 235 is a low viscosity amidoamine designed for reaction with liquid or solid epoxy resins. Its low viscosity and long pot life has enabled formulators to achieve high solids (90+ solids) while maintaining excellent application properties. Combine this with excellent corrosion resistance and this product is a natural, where meeting V.O.C. regulations are a must.

Amine Value: 350-400  
Viscosity at 25C: 1-4 poise  
Gardner Color: 10 max.

**GENAMID 250:**

GENAMID 250 is a low viscosity amidoamine resin designed for use with solid or liquid epoxy resins. GENAMID 250 offers good compatibility with a wide range of epoxy products and is most commonly used with bisphenol A based epoxy resins that have an epoxide equivalent weight of approximately 200. This resin is lower in viscosity than GENAMID 2000 although it is generally slower in curing time.

Amine Value - mg KOH/gram resin: 425-450  
Thermosel Viscosity at 25C - poise: 5-10  
Gardner Color - maximum: 10

**GENAMID 490:**

GENAMID 490 resin is a liquid, fatty amidoamine developed especially for reaction with liquid or solid epoxy resins. It is useful as all or part of the curing agent component in high solids adhesive, sealant, electrical potting, coating and flooring applications.

Amine Value - mg KOH/gram resin: 350-400  
Thermosel Viscosity at 25C - poise: 1-4  
Gardner Color - maximum: 12

**HENKEL POLYMERS DIVISION: GENAMID Epoxy Curing Agents  
(Continued):****GENAMID 491:**

GENAMID 491 resin is a modified amidoamine developed for reaction with liquid or solid epoxy resins. It can be used as all or part of the curing agent component in high solids, adhesive, sealant, electrical potting, coating and flooring applications.

Amine Value - mg KOH/gram resin: 500-580  
25C Thermosel Viscosity - poise: 6-12  
Gardner Color - maximum: 10

**GENAMID 747:**

GENAMID 747 is a very low viscosity amidoamine resin designed for use with solid or liquid epoxy resins. GENAMID 747 offers immediate compatibility with a wide range of epoxy products and because of its lower viscosity it can be formulated without the use of reactive diluents.

Amine Value - mg KOH/gram resin: 450-475  
Thermosel Viscosity at 25C - poise: 2-5  
Gardner Color - maximum: 11

**GENAMID 2000:**

GENAMID 2000 is a moderately-low viscosity amidoamine resin designed for use with liquid or solid epoxy resins. GENAMID 2000 has good compatibility with a wide range of epoxy products. Although somewhat higher in viscosity than GENAMID 250, this resin offers generally faster curing times.

Amine Value - mg KOH/gram resin: 580-620  
Thermosel Viscosity at 25C - poise: 10-25  
Gardner Color - maximum: 10

**HENKEL POLYMERS DIVISION: VERSAMID Epoxy Curing Agents:**

**VERSAMID 100:**

VERSAMID 100 is a semi-solid polyamide resin based on dimerized fatty acid and polyamines. This resin is designed for use with solid or liquid epoxy resins to give room temperature cured thermoset coatings.

Amine Value - mg KOH/gram resin: 85-95  
Thermosel Viscosity at 120C - poise: 30-50  
Gardner Color - maximum: 9

**VERSAMID 115:**

VERSAMID 115 is a high viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines. This product is designed for use with solid or liquid epoxy resins to give flexible and resistant thermoset coatings with room temperature cure.

Amine Value - mg KOH/gram resin: 230-246  
Thermosel Viscosity at 75C - poise: 35-45  
Gardner Color - maximum: 8

**VERSAMID 125:**

VERSAMID 125 is a medium viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines. This product is designed for use with solid or liquid epoxy resins to give tough, chemical resistant, thermoset coatings with room temperature cure.

Amine Value - mg KOH/gram resin: 330-360  
Thermosel Viscosity at 75C - poise: 6.5-9.5  
Gardner Color - maximum: 8

**VERSAMID 140:**

VERSAMID 140 is a moderately-low viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines. VERSAMID 140 is designed for use with solid or liquid epoxy resins to give tough, chemical resistant thermoset coatings with room temperature cure.

Amine Value - mg KOH/gram resin: 370-400  
Thermosel Viscosity at 25C - poise: 80-120  
Gardner Color - maximum: 7

**VERSAMID 150:**

VERSAMID 150 is a low viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines. VERSAMID 150 is designed for use with solid or liquid epoxy resins to give tough, chemical resistant coatings or potting materials with room temperature cure.

Amine Value - mg KOH/gram resin: 370-400  
Thermosel Viscosity at 25C - poise: 20-40  
Gardner Color - maximum: 8

**HENKEL POLYMERS DIVISION: VERSAMID Epoxy Curing Agents  
(Continued):****VERSAMID 230-XB60:**

VERSAMID 230-XB-60 is a polyamide/epoxy adduct in xylene and butanol designed for reaction with solid epoxy resins. This reactive adduct gives good compatibility with bisphenol A-based epoxy resins having an equivalent weight above 425, allowing normal induction times to be reduced or sometimes eliminated.

Amine Value - mg KOH/gram solution: 115-130

Thermosel Viscosity at 25C - poise: 22-35

Gardner Color - maximum: 9

**VERSAMID 253:**

VERSAMID 253 is a low viscosity polyamide designed for reaction with liquid or solid epoxy resins.

Amine Value: 210-235

Viscosity 25C: 5-20 poise

Gardner Color: 9 max.

**VERSAMID 280-B75:**

VERSAMID 280-B75 is a polyamide/epoxy adduct in n-butanol designed for reaction with solid or liquid epoxy resins. This reactive adduct offers a unique combination of properties not normally available from polyamide curing agents. VERSAMID 280-B75 has excellent compatibility with bisphenol A based epoxy resins allowing normal induction times to be reduced and sometimes eliminated.

Amine Value - mg KOH/gram solution: 240-260

Thermosel Viscosity at 25C - poise: 43-90

Gardner Color - maximum: 10

**VERSAMID 674:**

VERSAMID 674 is a medium viscosity, reactive polyamide resin based on dimerized fatty acid and polyamines. This product is designed for use with solid or liquid epoxy resins to give tough, chemical resistant, thermoset coatings with room temperature cure.

Amine Value - mg KOH/gram resin: 330-360

75C Thermosel Viscosity - poise: 3-6

Gardner Color - maximum: 9

**HENKEL POLYMERS DIVISION: VERSAMINE Epoxy Curing Agents:**

**VERSAMINE A50:**

VERSAMINE A50 is a liquid aliphatic amine adduct developed especially for use with liquid epoxy resins. It is used in small castings, laminates, gel coats, adhesives and patching repair kits. Resultant laminates and castings exhibit excellent work to break properties - a combination of high strength, toughness and shock resistance.

Amine Value mg KOH/gram: 795-895

25C Thermosel Viscosity - poise: 35-135

Gardner Color - max: 8

**VERSAMINE A51:**

VERSAMINE A51 is an adducted aliphatic amine curing agent cut in solids for handling convenience. It is intended specifically for use in solvent based epoxy surface coatings.

Amine Value - mg KOH/gram: 166-240

25C Thermosel Viscosity - poise: 6-9

Gardner Color - max: 4

**VERSAMINE A52:**

VERSAMINE A52 is an adducted aliphatic amine curing agent cut in solvents for handling convenience. The solvents are photochemically exempt, conforming to Rule 66 requirements. This curing agent is specifically intended for use in solvent based epoxy coatings.

Amine Value - mg KOH/gram resin: 166-240

25C Thermosel Viscosity - poise: 4-7

Gardner Color - max: 4

**VERSAMINE C30:**

VERSAMINE C30 is a low viscosity, very light colored, moisture insensitive room temperature curing agent for liquid and solid epoxy resins. It has been designed specifically for use in solventless coatings, self leveling flooring and castings where excellent chemical resistance, good color retention, excellent flow, blush resistance, good adhesion and cure under cool, damp conditions are required.

Amine Value - mg KOH/gram: 235-295

25C Thermosel Viscosity - Poise: 2-4

Gardner Color - max: 3

**VERSAMINE C31:**

VERSAMINE C31 is an extremely low viscosity, very light colored, moisture insensitive room temperature curing agent for liquid and solid epoxy resins. It has been designed specifically for use in solventless coatings, self leveling flooring and aggregates where excellent flow, leveling and blush resistance are required.

Amine Value - mg KOH/gram: 290-360

25C Thermosel Viscosity - poise: .5-1.0

Gardner Color - max.: 2

**HENKEL POLYMERS DIVISION: VERSAMINE Epoxy Curing Agents  
(Continued):****VERSAMINE C32:**

VERSAMINE C32 is a low viscosity, light colored, moisture insensitive modified amine designed for reaction with liquid epoxy resin. It has been designed specifically for use in solventless coatings where excellent chemical resistance, good color retention and blush resistance is important. It is important to note that VERSAMINE C32 has a tendency to darken in color on storage. It is also susceptible to carbonation at temperatures below 60C.

Amine Value - mg KOH/gram resin: 290-330

Viscosity at 25C: 4-8 poise

Gardner Color: 5 max

**VERSAMINE C33:**

VERSAMINE C33 is a faster setting version of VERSAMINE C32. It is a low viscosity, light colored, moisture insensitive modified amine designed for reaction with liquid epoxy resin. It has been designed specifically for use in solventless coatings where excellent chemical resistance, good color retention and blush resistance is important. It is important to note that VERSAMINE C33 has a tendency to darken in color on storage. It is also susceptible to carbonation at temperatures below 60C.

Amine Value - mg KOH/gram resin: 280-330

Viscosity at 25C; 2-6 poise

Gardner Color: 5 max

**VERSAMINE 170:**

VERSAMINE 170 is a medium viscosity, light colored, fast setting room temperature curing agent for liquid and solid epoxy resins. It has been designed specifically for use in formulating solventless and high solids coatings where outstanding chemical resistance and light fastness are required. Examples of typical applications include storage tank linings, adhesives and tooling compounds.

Amine Value - mg KOH/gram: 755-835

25C Thermosol Viscosity - poise: 30-50

Gardner Color - max.: 5

**VERSAMINE K11:**

VERSAMINE K11 is a low viscosity ketimine type epoxy curing agent formed by reacting a ketone and a polyamine. It is intended for specific use in long potlife, room temperature cure, high build coatings. Examples of typical applications include storage tank linings and high performance architectural and marine coatings where appearance as well as protection are desired.

Amine Value - mg KOH/gram: 621-701

25C Kinematic Viscosity - centistokes max.: 12

Gardner Color - max.: 5



**HENKEL POLYMERS DIVISION: VERSAMINE Epoxy Curing Agents  
(Continued):**

**VERSAMINE K12:**

VERSAMINE K12 is an extremely low viscosity pure ketimine type epoxy curing agent formed by reacting a ketone and a polyamine. It is intended for specific use in formulating long pot life, room temperature curing high build maintenance and electrical dip coatings. It is especially useful as a modifier to extend pot life and enhance flexibility of VERSAMINE K11 and K13 based coatings. Examples of typical applications include storage tank linings, electrical dip primers, architectural and marine coatings where appearance as well as protection are desired.

Amine Value - mg KOH/gram: 441-561  
25C Kinematic Viscosity - centistokes: 2-6  
Gardner Color - max: 8

**VERSAMINE K-13:**

VERSAMINE K-13 is a low viscosity, modified ketimine-type epoxy curing agent. It is formed by reacting polyamine with a ketone and further modifying to enhance important coating properties such as blush resistance and smoothness. It's intended for specific use in formulating long pot life, room temperature curing, high build coatings where appearance as well as outstanding chemical resistance properties are desired.

Amine Value - mg KOH/gram: 381-461  
25C Thermoset Viscosity - poise: 2-5  
Gardner Color - max: 8

**VERSAMINE EH30:**

VERSAMINE EH30 is a tertiary amine accelerator and curing agent for epoxy resin systems. The product is a technical grade of tris(dimethylaminomethyl)phenol. The anionic catalyst is a Lewis base which contains unshared electrons to facilitate opening the oxirane ring. VERSAMINE EH30, a Mannich base, shows marked acceleration because of the presence of the phenolic hydroxyl.

Amine Value: 600  
Gardner Color: 3-4 (8 Max)  
Brookfield Viscosity at 25C: 175-210 cp

**VERSAMINE F11 & F19:**

VERSAMINES F11 and F19 are medium viscosity, amine functional epoxy curing agents designed specifically for low-temperature (20-25F) fast curing of epoxy resins.

**VERSAMINE F11:**

Amine Value: 575-625  
Viscosity at 25C: 15-35 poise  
Gardner Color: 7 max.

**VERSAMINE F19:**

Amine Value: 520-580  
Viscosity at 25C: 5-15 poise  
Gardner Color: 7 max.

**HENKEL POLYMERS DIVISION: VERSAMINE Epoxy Curing Agents  
(Continued):****VERSAMINE F14:**

VERSAMINE F14 is a rapid room temperature curing agent having a fast thin film set time and providing an excellent bond even under humid conditions. These properties render VERSAMINE F14 suitable for use in a variety of civil engineering applications, fast setting adhesives, coal tar epoxy coatings and as an accelerator for other amine based curing agents.

Amine Value: 470-525

Viscosity at 25C: 10-22 poise

Gardner Color: 7 max.

**VERSAMINE F20:**

VERSAMINE F20 is a medium viscosity, fast setting curing agent for liquid and solid epoxy resins. It has been designed specifically for applications where low temperature (down to 30F) and high humidity underwater cure are required.

Amine Value - mg KOH/gram: 400-480

25C Thermosel Viscosity - poise: 20-40

Gardner Color - max: 13

**VERSAMINE F30 & F37:**

VERSAMINE F30 and F37 are amine functional epoxy curing agents designed to offer the combined properties of low-temperature cure 30-35F, higher solids and longer working times than commonly used phenol or mercaptan catalyzed systems.

**VERSAMINE F30:**

Amine Value: 310-350

Viscosity at 25C: 3-7 poise

Gardner Color: 7 max.

**VERSAMINE F37:**

Amine Value: 310-350

Viscosity at 25C: 20-50 poise

Gardner Color: 7 max.

**VERSAMINE 900:**

VERSAMINE 900 is a low viscosity modified liquid amine epoxy hardener designed for castings, potting and fast-set adhesive systems where low mixed viscosity and shrinkage combined with good electrical properties are important.

Color, Gardner Holt: 2 max

Viscosity at 25C: 290-800 cps

Amine Value: 900-1100

**HENKEL POLYMERS DIVISION: VERSAMINE Epoxy Curing Agents  
(Continued):**

**VERSAMINE 908:**

VERSAMINE 908 is a low viscosity fast-set liquid modified amine epoxy hardener designed for accelerating VERSAMID, GENAMID and select VERSAMINE curatives where high heat resistance and good color resistance are important.

Color, Gardner Holt: 4 max

Viscosity at 25C: 80-140 cps

Amine Value: 950-1200

**VERSAMINE 911:**

VERSAMINE 911 is a medium viscosity, light colored modified liquid amine epoxy hardener designed for applications where fast-set, good flexibility and medium blush resistance are important.

Color, Gardener Holt: 3 max

Viscosity at 25C: 5500 cps

AHEW: 180

**VERSAMINE 912:**

VERSAMINE 912 is a low viscosity, light colored fast-setting liquid modified amine epoxy hardener designed for applications where blush-free surfaces with good flexibility are required.

Color, Gardner Holt: 2 max

Viscosity at 25C: 300 cps

AHEW: 94

**VERSAMINE 1000:**

VERSAMINE 1000 is a very low viscosity, light colored liquid modified amine epoxy hardener designed for long pot life, blush-free applications where resistance to yellowing, thermal shrinkage and bubble free surfaces are important.

Color, Gardner Holt: 3 max

Viscosity at 25C: 80 cps

AHEW: 86

**VERSAMINE 1200:**

VERSAMINE 1200 is a low viscosity, light colored, moisture insensitive, room temperature epoxy curing agent designed to deliver moderately fast setting blush-free surfaces.

Amine Value, mg KOH/gram: 300-340

Viscosity at 25C poise: 3.5-6.5

Color (Gardner): 4 max

**HOECHST-CELANESE CORP.: BECKOPOX Special Hardeners:****A. Based on polyamine****EH 610:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 95  
Dynamic viscosity at 25C in m-pas: 200-300  
Reactivity: very high  
Rapid initial drying, little yellowing, can be processed at temperatures down to 5C - coatings, sealing compounds, adhesives

**EH 611:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 190  
Dynamic viscosity at 25C in m-Pas: 4000-8000  
Pot life: 7-10 min  
Reactivity: very high  
High elasticity, little yellowing, can be processed at temperatures down to 5C - coatings, sealing compounds, adhesives

**EH 614:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 54  
Dynamic viscosity at 25C in m-Pas: 3000-4500  
Pot life: 12-15 min  
Reactivity: high  
Cures in thin layers, high resistance to inorganic acids and solvents, curing down to 5C

**EH 623:**

Form supplied: 80% in water  
Active hydrogen equivalent weight: 160  
Dynamic viscosity at 25C in m-Pas: 12000-16000  
Pot life: 2-3 hrs  
Reactivity: medium  
Water-emulsifiable paint systems for corrosion protection on mineral and metal substrates - ECC

**EH 629:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 70  
Dynamic viscosity at 25C in m-Pas: 2500-3500  
Pot life: 15-20 min  
Reactivity: high  
Good all-round chemical resistance (combination partner for EH 641), curing down to 5C - coating compounds, adhesives, GRP components

**HOECHST-CELANESE CORP.: BECKOPOX Special Hardeners (Continued):**

**A: Based on polyamine (Continued):**

**EH 630:**

Form supplied: 55% in xylene/butanol/methyl glycol 4:3:1  
Active hydrogen equivalent weight: 190  
Dynamic viscosity at 25C in m-Pas: 2500-4000  
Pot life: approx. 4 hrs.  
Reactivity: medium  
Amine adduct, for solvent-based, chemical-resistant paints

**EH 637:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 100  
Dynamic viscosity at 25C in m-Pas: 80-100  
Pot life: 45-60 min  
Reactivity: medium  
For rel. yellowing-resistant coatings, self-leveling floor coatings, low-viscosity casting-resin compounds, laminates

**EH 640:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 114  
Dynamic viscosity at 25C in m-Pas: 3000-4000  
Pot life: 6-8 hrs  
Reactivity: very low

**EH 641:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 114  
Dynamic viscosity at 25C in m-Pas: 200-350  
Pot life: 3-4 hrs.  
Reactivity: very low  
Modified aromatic polyamine, good resistance to organic and inorganic acids (preferably combined with EH 629) high filler-absorption capacity-injection systems

**VEH 14:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 61  
Dynamic viscosity at 25C in m-Pas: 1400-1800  
Pot life: 15-20 min  
Reactivity: high  
Suitable for coatings on moist substrates, curing down to 5C-adhesives, injection systems

**HOECHST-CELANESE CORP.: BECKOPOX Special Hardeners  
(Continued):****A: Based on polyamine (Continued):****VEH 19:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 74  
Dynamic viscosity at 25C in m-Pas: 100-200  
Pot life: 25-35 min  
Reactivity: medium  
For relatively yellowing-resistant coatings and paints

**VEH 2082:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 100  
Dynamic viscosity at 25C in m-Pas: 2500-3000  
Pot life: 6-7 hrs  
Reactivity: Very low  
Systems with very long processing time, plasticizing effect, partner for highly reactive hardeners

**VEH 2312:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 80  
Dynamic viscosity at 25C in m-Pas: 2200-2800  
Pot life: 20-30 min  
Reactivity: high  
Good all-round chemical resistance, curing down to 5C - coatings, adhesives, GRP components, self-leveling floor coatings (partner for EH 637)

**VEH 2621:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 113  
Dynamic viscosity at 25C in m-Pas: 4000-5000  
Pot life: 30-45 min  
Reactivity: medium  
Relatively yellowing-resistant coatings, preferably for thick-film systems (airless application), good chemical resistance

**VEH 2625:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 68  
Dynamic viscosity at 25C in m-Pas: 1000-1500  
Pot life: 20-35 min  
Reactivity: high  
Suitable for coatings on moist substrates, injection systems, adhesive-curing down to 5C

**HOECHST-CELANESE CORP.: BECKOPOX Special Hardeners (Continued):**

**A: Based on Polyamine (Continued):**

**VEH 2632:**

Form supplied: 60% in xylene/methoxy propanol/diethyl  
ket 24:11:5

Active hydrogen equivalent weight: 120

Dynamic viscosity at 25C in m-Pas: approx. 1000

Pot Life: approx. 4 hrs

Reactivity: medium

Isolated aliphatic amine adduct, DETA content <1% -  
chemical-resistant paints, corrosion-protection systems

**VEH 2818:**

Form supplied: Solvent-free

Active hydrogen equivalent weight: 73

Dynamic viscosity at 25C in m-Pas: approx. 1000

Pot life: 20-25 min

Reactivity: high

Free of phenol and phenol derivatives, curing down to  
5C - for highly chemical-resistant vessel linings, flooring  
compounds, paints for steel structures

**B: Based on Polyaminoamide:**

**EH 651:**

Form supplied: solvent-free

Active hydrogen equivalent weight: 178

Dynamic viscosity at 25C in m-Pas: 500-1500

Reactivity: very low

**EH 651:**

Form supplied: 70% in xylene

Active hydrogen equivalent weight: 178

Dynamic viscosity at 25C in m-Pas: 500-1500

Pot life: 8 hrs

Reactivity: very low

For elastic paints and primers, long pot life, relatively  
good weather resistance

**EH 652:**

Form supplied: solvent-free

Active hydrogen equivalent weight: 105

Dynamic viscosity at 25C in m-Pas: 35000-50000

Pot life: 2-3 hrs

Reactivity: medium

Elastic trowelling compounds, EP-tar combinations,  
adhesives (eg for metals), high-solid paints (80C)

**HOECHST-CELANESE CORP.: BECKOPOX Special Hardener (Continued):****B:** Based on polyaminoamide (Continued):**EH 654:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 100  
Dynamic viscosity at 25C in m-Pas: 10000-18000  
Pot life: 2-3 hrs  
Reactivity: low  
For casting resins, adhesives, trowelling compounds, high-solid paints (80C)

**EH 655:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 1000-2000  
Pot life: 1-2 hrs  
Reactivity: high  
Highly filled, casting-resin compounds, elastic trowelling compounds, for modifying (plasticizing/increasing reactivity of) other hardeners

**EH 661:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 39  
Dynamic viscosity at 25C in m-Pas: 200-300  
Pot life: 60-80 min  
Reactivity: medium  
Epoxide-resin mortar and concrete, water-washable jointing compounds, adhesives

**VEH 20:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 200  
Dynamic viscosity at 25C in m-Pas: 40000-50000  
Pot life: 2-3 hrs  
Reactivity: low  
In combination with VEM 16 (1:1) for use in adhesives

**VEH 2617:**

Form supplied: solvent-free  
Active hydrogen equivalent weight: 51  
Dynamic viscosity at 25C in m-Pas: approx. 1000  
Pot life: 80-100 min  
Reactivity: medium  
Water-washable jointing compounds, trowelling and mortar compounds, adhesives

**VEH 2627:**

Form supplied: 50% in water  
Active hydrogen equivalent weight: 105-110  
Dynamic viscosity at 25C in m-Pas: 13000-20000  
Pot life: 3 hrs  
Reactivity: medium  
For water-emulsifiable paints, mineral substrates and corrosion-protection systems



**HULS AMERICA INC.: Amine/Epoxy Hardener Raw Materials:**

**Monomers:**

**VESTAMIN IPD:**

Isophoronediamine

Commercial Form: Low viscosity clear liquid

Average Equivalent Weight: 85.2

H-active Equivalent Wt.: 42.6

Density: 0.920-0.925 g/cm<sup>3</sup> at 20C

Application: Epoxy curatives in coatings, adhesives, castings & composites

**VESTAMIN TMD:**

Trimethylhexamethylenediamine

Commercial Form: Low viscosity clear liquid

Average Equivalent Weight: 79

H-active Equivalent Wt.: 39.6

Density: 0.865-0.870 g/cm<sup>3</sup> at 20C

Application: Same as IPD but for more flexible systems

**Hardeners/Liquid:**

**VESTAMIN V214:**

Aliphatic Adduct

Commercial Form: Low viscosity colorless liquid

H-active Equivalent Wt.: 70

Density: 0.92 g/cm<sup>3</sup> at 20C

Application: Solvent-free epoxy systems requiring low viscosity

**VESTAMIN A 139:**

Blocked Diamine

Commercial Form: Low viscosity liquid

Average Equivalent Weight: 140

H-active Equivalent Wt.: 70

Density: 0.86 g/cm<sup>3</sup> at 25C

Application: A humidity activated crosslinking agent especially suitable for accelerating the hardening of isocyanate containing prepolymers.

**HULS AMERICA INC.: Amine/Epoxy Hardener Raw Materials:**

**Hardeners/Powder:**

**VESTAGON B31:**

Cyclic Amidine  
Commercial Form: Flakes  
Melting Range: 99-101C  
Bulk Density: 450 kg/m<sup>3</sup>  
Application: High Gloss Epoxy Powder Coatings

**VESTAGON B55:**

Organic Salt  
Commercial Form: Very Fine Powder  
Melting Range: 236-242C  
Bulk Density: 440 kg/m<sup>3</sup>  
Application: Low Gloss Epoxy Powder Coatings

**VESTAGON B68:**

Organic Salt  
Commercial Form: Very Fine Powder  
Melting Range: 220-227C  
Bulk Density: 480 kg/m<sup>3</sup>  
Application: Ultra Matte Epoxy Powder Coatings

**THE HUMPHREY CHEMICAL CO.: Alkenyl & Alkyl Substituted Succinic Anhydrides:**

**J-8:**

Alkenyl: n-Octenyl  
Molecular Weight: 210.3  
Acid Number: 534  
Yellow liquid

**J-8R:**

Alkenyl: n-Octenyl-Residue  
Amber glass-like solid

**K-9:**

Alkenyl: Nonenyl  
Molecular Weight: 224.3  
Acid Number: 500  
Yellow liquid

**J-10:**

Alkenyl: n-Decenyl  
Molecular Weight: 238.4  
Acid Number: 471  
Yellow liquid

**J-12:**

Alkenyl: n-Dodecenyl  
Molecular Weight: 266.4  
Acid Number: 421  
Off white solid

**K-12:**

Alkenyl: Dodecenyl (from Tetrapropylene)  
Molecular Weight: 266.4  
Acid Number: 421  
Yellow liquid

**K-12R:**

Alkenyl: Dodecenyl-Residue  
Brown glass-like solid

**J-14:**

Alkenyl: n-Tetradecenyl  
Molecular Weight: 294.5  
Acid Number: 381  
Off white solid

**J-16:**

Alkenyl: n-Hexadecenyl  
Molecular Weight: 322.5  
Acid Number: 348  
Off white solid

**THE HUMPHREY CHEMICAL CO.: Alkenyl & Alkyl Substituted Succinic Anhydrides (Continued):****Alkenyl (Continued):****T-16C:**

Alkenyl: Iso-Hexadecenyl, Undistilled  
Molecular Weight: 322  
Dark amber liquid

**J-18:**

Alkenyl: n-Octadecenyl  
Molecular Weight: 350.5  
Acid Number: 320  
Off white solid

**T-18:**

Alkenyl: iso-Octadecenyl  
Molecular Weight: 350.5  
Acid Number: 320  
Yellow liquid

**J-30:**

Alkenyl: n-Triacontenyl  
Molecular Weight: 561  
Acid Number: 200  
Light tan color waxy solid

**Alkyl:****N-8:**

Alkyl: n-Octyl  
Molecular Weight: 212.3  
Acid Number: 529  
Off white solid

**N-10:**

Alkyl: n-Decyl  
Molecular Weight: 240.4  
Acid Number: 467  
Off white solid

**N-12:**

Alkyl: n-Dodecyl  
Molecular Weight: 268.4  
Acid Number: 418  
Off white solid

**THE HUMPHREY CHEMICAL CO.: Alkenyl & Alkyl Substituted Succinic Anhydrides (Continued):**

**Alkyl (Continued):**

**N-14:**

Alkyl: n-Tetradecyl  
Molecular Weight: 296.5  
Acid Number: 378  
Off white solid

**N-16:**

Alkyl: N-Hexadecyl  
Molecular Weight: 324.5  
Acid Number: 346  
Off white solid

**N-18:**

Alkyl: n-Octadecyl  
Molecular Weight: 352.5  
Acid Number: 318  
Off white solid

**Casyl:**

**U-18/Oil:**

Casyl 18-50 SD  
Clear amber liquid

**U-18/Oil/SSO:**

Casyl 18-50 SD, SSO  
Clear amber liquid

**THE HUMPHREY CHEMICAL CO.: Developmental Alkenyl & Alkyl  
Succinic Anhydrides, Alkyl Maleic Anhydrides:**

**Q-1:**

Alkenyl or Alkyl: Methyl Maleic Anhydride  
Molecular Weight: 112.1  
Acid Number: 999  
Colorless liquid

**J-5:**

Alkenyl or Alkyl: n-Pentenyl  
Molecular Weight: 168  
Acid Number: 667

**J-6:**

Alkenyl or Alkyl: n-Hexenyl  
Molecular Weight: 182.2  
Acid Number: 616  
Yellow liquid

**N-6:**

Alkenyl or Alkyl: n-Hexyl  
Molecular Weight: 184.2  
Acid Number: 609  
White solid

**T-6:**

Alkenyl or Alkyl: iso-Hexenyl  
Molecular Weight: 182.2  
Acid Number: 616  
Yellow liquid

**V-6:**

Alkenyl or Alkyl: iso-Hexyl  
Molecular Weight: 184.2  
Acid Number: 609  
Water white liquid

**J-8-2:**

Alkenyl or Alkyl: Methyl-Heptenyl-n-Octenyl (60/40 blend)  
Molecular Weight: 210.3  
Acid Number: 534  
Yellow liquid

**K-8:**

Alkenyl or Alkyl: Diisobutenyl  
Molecular Weight: 210.3  
Acid Number: 534  
Yellow liquid

**THE HUMPHREY CHEMICAL CO.: Developmental Alkenyl & Alkyl  
Succinic Anhydrides, Alkyl Maleic Anhydrides (Continued):**

**F-10:**

Decenyl  
Molecular Weight: 238  
Pale yellow liquid

**T-12:**

Iso-Dodecenyl  
Molecular Weight: 266.4  
Acid Number: 421  
Yellow liquid

**K-15:**

Pentapropenyl (from Pentapropylene)  
Molecular Weight: 288-305  
Yellow liquid

**K-16:**

Tetraisobutenyl  
Molecular weight: 322  
Acid Number: 348  
Yellow liquid

**K-18:**

Hexapropenyl  
Molecular Weight: 330-350  
Yellow liquid

**V-18:**

iso-Octadecyl  
Molecular Weight: 352.5  
Acid Number: 318  
Yellow liquid

**F-20:**

Eicosenyl  
Molecular Weight: 379  
Acid Number: 295  
Yellow liquid

**J-20/24:**

n-Eicosenyl-n-Tetradecenyl blend  
Molecular Weight: 395  
Acid Number: 284  
Light tan waxy solid

**THE HUMPHREY CHEMICAL CO.: Developmental Alkenyl & Alkyl  
Succinic Anhydrides, Alkyl Maleic Anhydrides (Continued):**

**J-24/28:**

n-Tetracosenyl-n-Octacosenyl blend  
Molecular Weight: 465  
Acid Number: 241  
Light tan waxy solid

**F-30C:**

Triacntenyl, undistilled  
Brown viscous liquid

**K-66:**

Polyisobutenyl  
Molecular Weight: 1018  
Acid Number: 110  
Brown viscous liquid



**LEEPOXY PLASTICS, INC.: LEECURE B Hardeners:**

LEEURE B series hardeners are a family of boron trifluoride based epoxy curing agents providing a broad range of curing speeds. They can be used with all commercially available epoxy resins to provide water, heat, and chemical resistant compounds with exceptional physical strengths and electrical properties.

**B-610:**

Color: purple-brown  
Viscosity @ 25C., cps: 10,000  
Lbs./gal.: 9.0

**B-612:**

Color: purple-amber  
Viscosity @ 25C., cps: 10,000  
Lbs./gal.: 9.0

**B-614:**

Color: amber  
Viscosity @ 25C., cps: 11,000  
Lbs./gal.: 9.0

**B-1310:**

Color: amber  
Viscosity @ 25C., cps: 12,000  
Lbs./gal.: 9.0

**B-110:**

Color: brown  
Viscosity @ 25C., cps: 15,000  
Lbs./gal.: 9.0

**B-950:**

Color: red-brown  
Viscosity @ 25C., cps: 33,000  
Lbs./gal.: 10.0

**B-550:**

Color: brown  
Viscosity @ 25C., cps: 40,000  
Lbs./gal.: 10.0

**B-1550:**

Color: honey  
Viscosity @ 25C., cps: 15,000  
Lbs./gal.: 10.0

**B-1600:**

Color: amber  
Viscosity @ 25C., cps: 7,000  
Lbs./gal.: 9.0

**B-1700:**

Color: amber  
Viscosity @ 25C., cps: 4,000  
Lbs./gal.: 8.5

**LEEPOXY PLASTICS, INC.: LEECURE B Hardeners (Continued):**

Typical Properties are Obtained in Conjunction with Bisphenol A Epoxy Resin (EEW=189):

**B-610:**

Mix Ratio, phr: 8-12  
Pot Life @ 25C., 11 grams: 15 sec  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 30 sec/25C.

**B-612:**

Mix Ratio, phr: 8-12  
Pot Life @ 25C., 11 grams: 75 sec  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 3 min/25C.

**B-614:**

Mix Ratio, phr: 8-12  
Pot Life @ 25C., 11 grams: 12 min  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 60 sec/65C.

**B-1310:**

Mix Ratio, phr: 8-12  
Pot Life @ 25C., 11 grams: 25 min  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 90 sec/65C.

**B-110:**

Mix Ratio, phr: 8-12  
Pot Life @ 25C., 11 grams: 5 hr  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 10 min/100C.

**B-950:**

Mix Ratio, phr: 4-6  
Pot Life @ 25C., 11 grams: 1-2 days  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 1 hr/100C.

**B-550:**

Mix Ratio, phr: 4-6  
Pot Life @ 25C., 11 grams: 2.5 mo  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 1 hr/135C.

**B-1550:**

Mix Ratio, phr: 4-6  
Pot Life @ 25C., 11 grams: 4 mo  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 1 hr/150C.

**B-1600:**

Mix Ratio, phr: 20  
Pot Life @ 25C., 11 grams: 5-6 mo  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 1.5 hr/150C.

**B-1700:**

Mix Ratio, phr: 20  
Pot Life @ 25C., 11 grams: 5-6 mo  
Suggested Cure Cycle in thin film or bead,  
time/temperature: 1.5 hr/150C.

**LINDAU CHEMICALS INC.: Anhydrides:**

**LINDRIDE 2:**

LINDRIDE 2 is a mixture of isomeric forms of Methyltetrahydrophthalic Anhydride (MTHPA) which is completely soluble in liquid epoxy resins such as Shell's Epon 828.

Anhydride Equivalency: 160-170

Viscosity (cps @ 25C): 50-150

Specific Gravity: 1.21-1.23

Flash Point F: 275

**LINDRIDE 12:**

LINDRIDE 12 is a light colored, low viscosity liquid anhydride. It consists of a mixture of the isomeric forms of methyltetrahydrophthalic anhydride (MTHPA).

Anhydride Equivalency: 160-170

Brookfield Viscosity (cps @ 25C): 50-150

Specific Gravity @ 25C: 1.21-1.23

Flash Point (TCC): Greater than 275

**LINDRIDE 6K:**

LINDRIDE 6K consists primarily of a mixture of isomeric forms of methyl tetrahydrophthalic anhydride.

Clear, amber colored liquid

Gardner Color: 10 max.

Brookfield Viscosity (cps @ 25C): 50-300

Specific Gravity @ 25C: 1.21-1.23

Anhydride Equivalency: 165-175

Gel Time (minutes @ 100): 15-18

**LINDRIDE 6Q:**

LINDRIDE 6Q is a pre-promoted mixture of isomeric forms of Methyltetrahydrophthalic Anhydride (MTHPA), which is completely soluble in liquid epoxy resins such as Shell's Epon 828.

Anhydride Equivalency: 165-175

Viscosity cps @ 25C: 50

Specific Gravity: 1.21-1.23

Flash Point, F: 275

**LINDRIDE 6V:**

LINDRIDE 6V consists primarily of a mixture of isomeric forms of methyl tetrahydrophthalic anhydride.

Clear, amber colored liquid

Gardner Color: 10 max.

Brookfield Viscosity (cps @ 25C): 50-300

Specific Gravity @ 25C: 1.21-1.23

Gel Time (minutes @ 100): 10-12

**LINDAU CHEMICALS INC.: Anhydrides (Continued):****LINDRIDE 17:**

LINDRIDE 17 is pre-promoted form of LINDRIDE 12, an anhydride curing agent consisting of a low viscosity mixture of isomeric forms of methyl-tetrahydrophthalic anhydride (MTHPA), and which has been vacuumed to reduce residual volatile organics to a low level.

Anhydride Equivalency: 160-170  
 Viscosity (cps @ 25C): 50-110  
 Specific Gravity @ 25C: 1.21-1.23  
 Flash Point (TCC): Greater than 275F

**LINDRIDE 19:**

LINDRIDE 19 is a pre-promoted form of LINDRIDE 12 which has been formulated specifically for maximum pot life.

Gel Time (123C): 20-25 minutes  
 Pot Life (27C): 2 months  
 Gardner Color: 8 max.  
 Viscosity (cps at 25C): 75-175  
 Specific Gravity: 1.21-1.23  
 Flash Point: 275C

**LINDRIDE 32 Series:**

Members of the LINDRIDE 32 series of liquid anhydrides are composed of various isometric forms of Methyltetrahydrophthalic Anhydride, specifically formulated to remain free of crystals at temperatures well below ambient. These materials exist as completely clear liquids at temperatures above 45F.

**LINDRIDE 32:**

Forms the foundation of the series. It is recommended where epoxy resins are to be used in a variety of non-repetitive applications or where promoter levels need to be adjusted to attain specific cure rates.

**LINDRIDE 34:**

Is a derivative of LINDRIDE 32. It is formulated to minimize color formation on mixing of amine-type promoters with epoxy systems. It is used in applications wherein clarity of products is of importance.

**LINDRIDE 35:**

Is pre-catalyzed with an imidazole derivative. Its use avoids the error-prone inconvenience of weighing and blending small quantities of promoters. It is recommended for maximum heat distortion temperature.

**LINDRIDE 36:**

Is pre-promoted with a quaternary amine salt. It is formulated to generate very little color during cure and is hence particularly recommended for applications requiring finished resins of very low color.

**LINDAU CHEMICALS INC.: Anhydrides (Continued):**

**LINDRIDE 32 Series (Continued):**

**LINDRIDE 32:**

Anhydride Equivalency: 160-170  
Viscosity (cps at 25C): 50-150  
Specific Gravity: 1.19-1.22  
Flash Point (TCC): >225F  
Freezing Point: <32F

**LINDRIDE 34:**

Anhydride Equivalency: 165-175  
Viscosity (cps at 25): 100-175  
Specific Gravity: 1.19-1.22  
Flash Point (TCC): >225F  
Freezing Point: <32F

**LINDRIDE 35:**

Anhydride Equivalency: 165-175  
Viscosity (cps at 25): 100-200  
Specific Gravity: 1.19-1.22  
Flash Point (TCC): >225F  
Freezing Point: <32F

**LINDRIDE 52 Series:**

The LINDRIDE 52 series is a group of anhydrides based on 4-Methylhexahydrophthalic Anhydride (MHHPA).

**LINDRIDE 52:**

Forms the foundation of the series. It is recommended where epoxy resins are to be used in a variety of non-repetitive applications or where promoter levels need to be adjusted to attain specific cure rates.

**LINDRIDE 55:**

Is prepromoted with LINDAX-1. It is recommended for use where higher heat distortions are required.

**LINDRIDE 56:**

Is prepromoted with a quaternary amine. This formulation gives particularly good corrosion resistance, and in addition, generates very low color during cure.

**LINDRIDE 52:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-150  
Specific Gravity @ 25C: 1.15-1.17  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Gardner Color: 2

**LINDAU CHEMICALS INC.: Anhydrides (Continued):****LINDRIDE 52 Series (Continued):****LINDRIDE 55:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-300  
Specific Gravity @ 25C: 1.15-1.17  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Gardner Color: 12-14

**LINDRIDE 56:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-300  
Specific Gravity @ 25C: 1.15-1.17  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Gardner Color: 6

**LINDRIDE 52-D:**

LINDRIDE 52-D is a distilled form of 4-Methylhexahydro-phthalic Anhydride (MHHPA).

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-150  
Specific Gravity @ 25C: 1.15-1.17  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Color: APHA 50 max.

**LINDRIDE 62 Series:**

The LINDRIDE 62 series of anhydrides is based on a blend of anhydride containing methylhexahydrophthalic anhydride (MHHPA).

**LINDRIDE 62:**

Forms the foundation of the series. It is recommended where epoxy resins are to be used in a variety of non-repetitive applications or where promoter levels need to be adjusted to attain specific cure rates.

**LINDRIDE 65:**

Is prepromoted with N-Methyl Imidazole. Is recommended for use where higher heat distortions are required.

**LINDRIDE 66:**

Is prepromoted with a quaternary amine. This formulation gives particularly good corrosion resistance, and in addition, generates very low color during cure.

**LINDAU CHEMICALS INC.: Anhydrides (Continued):**

**LINDRIDE 62 Series (Continued):**

**LINDRIDE 62:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-150  
Specific Gravity @ 25C: 1.16-1.18  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Gardner Color: 2

**LINDRIDE 65:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-300  
Specific Gravity @ 25C: 1.16-1.18  
Flash Point (TCC): >225F  
Freezing Point: 32F  
Gardner Color: 12-14

**LINDRIDE 66:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-300  
Specific Gravity @ 25C: 1.16-1.18  
Flash Point (TCC): >225F  
Freezing Point: <32F  
Gardner Color: 6

**LINDRIDE 62T Series:**

The LINDRIDE 62T series of anhydrides is based on a blend of anhydride containing methylhexahydrophthalic anhydride (MHHPA).

**LINDRIDE 62T:**

Forms the foundation of the series. It is recommended where epoxy resins are to be used in a variety of non-repetitive applications or where promoter levels need to be adjusted to attain specific cure rates.

**LINDRIDE 63:**

Is prepromoted with quaternary amine. This formulation gives particularly good corrosion resistance, and in addition, generates very low color during cure.

**LINDRIDE 62T:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-150  
Specific Gravity @ 25C: 1.16-1.18  
Flash Point (TCC): >225F

**LINDRIDE 63:**

Anhydride Equivalency: 165-175  
Viscosity (cps @ 25C): 50-300  
Specific Gravity @ 25C: 1.16-1.18  
Flash Point (TCC): >225F

**LINDAU CHEMICALS INC.: Anhydrides (Continued):****4-Methyltetrahydrophthalic Anhydride:**

4-Methyltetrahydrophthalic Anhydride (MTHPA) is a white to off-white solid at room temperature.

Appearance: Off-White Solid

Solidification Point: 60C min.

Flash Point: >225F

Anhydride Equivalent Weight: 160-170

% Free Acid: 1.0% max.

**LINDRIDE 500:**

LINDRIDE 500 is an aliphatic dicarboxylic acid anhydride which can be used effectively as an epoxy curing agent, cross-linking agent or as a starting material for polyester or polyimide preparation.

Molecular Weight: 264

Melting Range (C): 70-90C

Neutralization Equivalent: 70-79 mg/meq

Particle Size: 98% Thru 200 mesh

**Benzyl dimethylamine (BDMA):**

Formula Weight: 135.2

Appearance: Colorless to light yellow liquid

Moisture: 0.3% Max.

Density: grams/cm<sup>3</sup>: 0.90-0.92

pounds/gallon: 7.5-7.7

Flash Point: 135F min.

Boiling Point: 183-184C

**Benzyltriethylammonium Chloride (BTEAC):**

Formula: C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>N(C<sub>2</sub>H<sub>5</sub>)<sub>3</sub>Cl

Appearance: Free-flowing white to off-white crystalline solid

Contact with air: Somewhat hygroscopic.

Specifications: Per Cent Volatiles: 1% Max

Per Cent Chloride: 15.3-15.9%

**Benzyltrimethylammonium Chloride (BTMAC):**

Formula: C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub>Cl

Formula Weight: 185.7

Appearance: Free-flowing white to off-white crystalline solid.

Contact with Air: Deliquescent!

Specifications: Per Cent Volatiles: 1% Max

Per Cent Chloride: 18.8-19.4%

**LINDAX-1:**

Catalytic Curing Agent for Epoxy Resins

A complex heterocyclic amine recommended for curing epoxy resins.

Color: Reddish Amber

Viscosity at 25C (cps): 3000-5000

Specific Gravity at 25C: 1.1

% Nitrogen: 21.0-24.0

Heat Distortion Temperature (C): @ 2.0 PHR: 135



**MILLIKEN CHEMICALS: MILLAMINE 5260 Epoxy Curing Agent:**

MILLAMINE 5260 is a cycloaliphatic diamine epoxy curing agent that offers outstanding HDT, chemical resistance, and physical properties in the cured system. Cycloaliphatic amines are growing in importance as curing agents. MILLAMINE 5260 compares favorably to Methylene Dianiline (MDA) in all final product performance properties.

Molecular Weight: 114  
H-Activity: 28.5  
Specific Gravity: .9408  
Boiling Point: 188C  
Refractive Index: 1.4869  
Color (APHA), Max.: 100

**Typical Composition:**

1,2-Diaminocyclohexane: 93%  
Hexamethylenediamine: 0.8%  
Methylpentamethylenediamine: 6.0%  
Water: 0.2%

**Epoxy Applications:**

MILLAMINE 5260 offers economic and performance advantages over other cycloaliphatic amines and over aromatic amines. MILLAMINE 5260 gives a high HDT in combination with excellent chemical resistance.

Many epoxy formulators are searching for alternatives to aromatic amines, but they are reluctant to sacrifice outstanding physical properties and chemical resistance. Comparison of MILLAMINE 5260 with aromatic amines demonstrates that substitution can be accomplished without sacrificing properties. Of course, running conditions will definitely vary.

Suggested end uses are in the flooring and grouting area, chemical resistant coatings, and fiber reinforced composites and laminates.

**MILLIKEN CHEMICALS: MILLDRIDE Anhydrides:****Alkenyl Succinic Anhydrides:****Commercial:****Octenyl Succinic Anhydride:**

(OSA)C8-Linear  
Mol. Wt.: 210  
Side Chain Length: 8  
Sap. No.: 534  
Solid Deg. C.: 10  
Sp. G.: 1.0  
B.P. Deg. C/mm Hg: 168 @ 10mm

**Dodecenyl Succinic Anhydride:**

(DDSA)C12-Branched  
Mol. Wt.: 266  
Side Chain Length: 12  
Sap. No.: 418  
Sp. G.: 1.003-1.008  
B.P. Deg. C./Mm Hg: 220 @ 10mm

**Tetradecenyl Succinic Anhydride:**

(TDSA)C14-Linear  
Mol. Wt.: 294  
Side Chain Length: 14  
Sap. No.: 381  
Solid Deg. C.: 45  
Sp. G.: 0.95  
B.P. Deg. C/mm Hg: 235 @ 15mm

**Octadecenyl Succinic Anhydride:**

(ODSA)C18-Linear  
Mol. Wt.: 350  
Side Chain Length: 18  
Sap. No.: 320  
Solid Deg. C.: 69  
Sp. G.: 0.9428  
B.P. Deg. C/mm Hg: 251 @ 4mm

**Developmental:****n-Decenyl Succinic Anhydride:**

(nDSA)C10-Linear  
Mol. Wt.: 238  
Side Chain Length: 10  
Sap. No.: 471  
Solid Deg. C.: 16  
Sp. G.: 1.005  
B.P. Deg. C/mm Hg: 195 @ 10mm

**MILLIKEN CHEMICALS: MILLDRIDE Anhydrides (Continued):**

**Developmental (Continued):**

**n-Dodecenyl Succinic Anhydride:**

(nDDSA)C12-Linear  
Mol. Wt.: 266  
Side Chain Length: 12  
Sap. No.: 421  
Solid Deg. C.: 35  
Sp. G.: 0.96  
B.P. Deg. C/mm Hg: 175 @ 1mm

**Hexadecenyl Succinic Anhydride:**

(HDSA)C16-Branched  
Mol. Wt.: 294  
Side Chain Length: 16  
Sap. No.: 348  
Solid Deg. C.: 54/4  
Sp. G.: 0.95  
B.P. Deg. C/mm Hg: 235 @ 5mm

**Cycloaliphatic Anhydrides:**

**Hexahydrophthalic Anhydride (HHPA):**

Mol. Wt.: 154  
Side Chain Gms./A NEq: 154  
Neutralization Value: 730  
Melt Point C.: 35  
Sp.G.: 1.18 @ 40C  
B.P. Deg. C @ 5mm Hg: 110

**Methyl Hexahydrophthalic Anhydride (MHHPA):**

(MHHPA is a eutectic blend of HHPA and the 4-methyl isomer of MHHPA)  
Mol. Wt.: 164  
Side Chain Gms/A NEq: 164  
Neutralization Value: 685  
Melt Point C.: -15  
Sp. G.: 1.17 @ 25C  
B.P. Deg. C 5mm Hg: 127

**Cycloaliphatic Dianhydrides:**

**MILLDRIDE 5060:**

Mol. Wt.: 264  
Particle Size Through 200 Mesh: 98%  
Sap. No.: 925  
Melt Point C.: 70-90  
Anhyd. Equiv. Mg/AG: 148  
Bulk Density gms/cc: 0.3

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents:  
Aliphatic Amines:**

**AEP:**

AEP is a 96% minimum purity grade of N-aminoethyl-piperazine, designed for use as a curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 43

Recommended Use Level, phr (EEW=190): 23

**DETA-HP:**

DETA-HP is a 98.5% minimum purity grade of diethylenetriamine.

Equivalent Wt./{H}: 21

Recommended Use Level, phr (EEW=190): 11

**TETA:**

TETA is a standard commercial grade of triethylenetetramine.

Equivalent Wt./{H}: 27

Recommended Use Level, phr (EEW=190): 14

**TEPA:**

TEPA is a standard commercial grade of tetraethylene pentamine.

Equivalent Wt./{H}: 34

Recommended Use Level, phr (EEW=190): 18

**Amine HH:**

Amine HH is a low viscosity moderately colored blend of aliphatic polyamines designed for use as a low-cost curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 37

Recommended Use Level, phr (EEW=190): 20

**AMICURE AC-15:**

AMICURE AC-15 curing agent is an aliphatic polyamine which functions as a curing agent for flexible epoxy resin systems.

Amine Equivalent Weight: 55+-3

Amine Number, Min.: 630

**AMICURE AC-33:**

AMICURE AC-33 curing agent is an aliphatic polyamine which functions as a curing agent for flexible epoxy resin systems.

Amine Number, Min.: 590-600

**AMICURE AC-57:**

AMICURE AC-57 curing agent is an aliphatic polyamine which functions as a curing agent for flexible epoxy resin systems.

Total Amine Number, Min.: 312

Amine Equivalent Weight: 113+-5

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents:  
Aliphatic Amines (Continued):**

**ANCAMINE AD Curing Agent:**

ANCAMINE AD curing agent is a rapid room temperature curing agent that has a fast thin film set time.

Equivalent Wt./{H}: 107

Recommended Use Level, phr (EEW=190): 60

**SUR-WET R Curing Agent:**

SUR-WET R curing agent is a water insoluble, modified aliphatic polyamine curing agent for epoxy resins.

Equivalent Wt./{H}: 222

Recommended Use Level, phr (EEW=190): 115

**ANCAMINE S-4 Curing Agent:**

ANCAMINE S-4 curing agent is a unique curing agent based on functional extender technology.

Equivalent Wt./{H}: 190

Recommended Use Level, phr (EEW=190): 100

**ANCAMINE T-1:**

ANCAMINE T-1 curing agent is an accelerated version of ANCAMINE T curing agent.

Equivalent Wt./{H}: 47

Recommended Use Level, phr (EEW=190): 25

**ANCAMINE XT Curing Agent:**

ANCAMINE XT curing agent is a low viscosity amine curing agent that provides rapid cure at ambient temperature and can also cure liquid epoxy resins at temperatures as low as 32F.

Equivalent Wt./{H}: 41

Recommended Use Level, phr (EEW=190): 25

**EDA Adduct 870:**

EDA Adduct 870 is a chemical adduct of a solid epoxy resin with ethylene diamine (EDA).

Equivalent Wt./{H}: 245

Recommended Use Level, phr (EEW=500): 40-50

**ANCAMINE 1483 Curing Agent:**

ANCAMINE 1483 curing agent is an aliphatic amine adduct for room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 44

Recommended Use Level, phr (EEW=190): 25

**ANCAMINE 1510 Curing Agent:**

ANCAMINE 1510 curing agent is a modified aliphatic polyamine intended primarily for use as a curing agent for solvent-free epoxy resin systems.

Equivalent Wt./{H}: 60

Recommended Use Level, phr (EEW=190): 30

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aliphatic Amines (Continued):****ANCAMINE 1608 Curing Agent:**

ANCAMINE 1608 curing agent is a light-colored aliphatic amine adduct.

Equivalent Wt./{H}: 44

Recommended Use Level, phr (EEW=190): 20

**ANCAMINE 1617 Curing Agent:**

ANCAMINE 1617 curing agent is a light-colored aliphatic amine adduct intended for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 77

Recommended Use Level, phr (EEW=190): 35

**ANCAMINE 1636 Curing Agent:**

ANCAMINE 1636 curing agent is a low viscosity, cyanoethylated amine for use in the ambient temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 38

Recommended Use Level, phr (EEW=190): 20

**ANCAMINE 1637 Curing Agent:**

ANCAMINE 1637 curing agent is a rapid Mannich-Base curing agent with a fast thin film set time, even under adverse, humid conditions.

Equivalent Wt./{H}: 55

Recommended Use Level, phr (EEW=190): 26

**ANCAMINE 1637-LV Curing Agent:**

ANCAMINE 1637-LV curing agent is a rapid Mannich-Base curing agent with a fast thin film set time, even under adverse humid conditions.

Equivalent Wt./{H}: 50

Recommended Use Level, phr (EEW=190): 26

**ANCAMINE 1638 Curing Agent:**

ANCAMINE 1638 curing agent is an activated aliphatic amine with low viscosity, high reactivity and low loading, which makes it useful as a modifier for other amine curing agents.

Equivalent Wt./{H}: 31

Recommended Use Level, phr (EEW=190): 15

**ANCAMINE 1644 Curing Agent:**

ANCAMINE 1644 curing agent is an activated aliphatic amine used to cure liquid epoxy resins.

Equivalent Wt./{H}: 154

Recommended Use Level, phr (EEW=190): 75

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aliphatic Amines (Continued):**

**ANCAMINE 1767 Curing Agent:**

ANCAMINE 1767 curing agent is an accelerated aliphatic amine that, when used to cure liquid epoxy resins, offers rapid cure, light color and moisture insensitivity.

Equivalent Wt./{H}: 180

Recommended Use Level, phr (EEW=190): 75-100

**ANCAMINE 1768 Curing Agent:**

ANCAMINE 1768 curing agent is a rapid room temperature curing agent for epoxy resins.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 1769 Curing Agent:**

ANCAMINE 1769 curing agent is a hydroxyalkylated polyamine for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 48

Recommended Use Level, phr (EEW=190): 25

**ANCAMINE 1784 Curing Agent:**

ANCAMINE 1784 curing agent is a room temperature, low viscosity liquid aliphatic amine hardener for epoxy resins.

Equivalent Wt./{H}: 86

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 1799 Curing Agent:**

ANCAMINE 1799 curing agent is a modified aliphatic polyamine which has been designed for use primarily in decoupage applications.

Equivalent Wt./{H}: 162

Recommended Use Level, phr (EEW=190): 85

**ANCAMINE 1833 Curing Agent:**

ANCAMINE 1833 curing agent is a chemically modified aliphatic/aromatic amine blend.

Equivalent Wt./{H}: 36

Recommended Use Level, phr (EEW=190): 20

**ANCAMINE 1856 Curing Agent:**

ANCAMINE 1856 curing agent is a modified aliphatic amine of high reactivity and good color stability when cured.

Equivalent Wt./{H}: 73

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 1916 Curing Agent:**

ANCAMINE 1916 curing agent is a phenol-free amine adduct which imparts good color, high rigidity and physical strength to liquid epoxy resin cures cured at room and/or elevated temperatures.

Equivalent Wt./{H}: 43

Recommended Use Level, phr (EEW=190): 25

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aliphatic Amines (Continued):****ANCAMINE 1922 Curing Agent:**

ANCAMINE 1922 curing agent is a very low viscosity, moderately reactive room temperature curing agent for epoxy resins.

Equivalent Wt./{H}: 55

Recommended Use Level, phr (EEW=190): 29

**ANCAMINE 1942 Curing Agent:**

ANCAMINE 1942 curing agent is a low viscosity, cyanoethylated amine, ambient temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 70

Recommended Use Level, phr (EEW=190): 37

**ANCAMINE 1978 Curing Agent:**

ANCAMINE 1978 curing agent is a rapid-curing aliphatic amine Mannich-Base, similar in performance to, but lower in viscosity than, ANCAMINE 1637 and ANCAMINE 1637LV curing agents.

Equivalent Wt./{H}: 47.5

**ANCAMINE 2021 Curing Agent:**

ANCAMINE 2021 curing agent is a modified aliphatic polyamine adduct intended for use as a room temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 85

Recommended Use Level, phr (EEW=190): 45

**ANCAMINE 2030 Curing Agent:**

ANCAMINE 2030 curing agent is an aliphatic polyamine which can be used as an intermediate or curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 60

Recommended Use Level, phr (EEW=190): 30

**ANCAMINE 2031 Curing Agent:**

ANCAMINE 2031 curing agent is a modified aliphatic amine designed for use as a room temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 75

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 2059AS Curing Agent:**

ANCAMINE 2059AS curing agent is a modified polyamine designed for the latent curing of epoxy resins.

Equivalent Wt./{H}: 57

Recommended Use Level, phr (EEW=190): 30



**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aliphatic Amines (Continued):**

**ANCAMINE 2071 Curing Agent:**

ANCAMINE 2071 curing agent is a rapid-setting, phenol-free aliphatic polyamine epoxy curing agent.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 2089M Curing Agent:**

ANCAMINE 2089M curing agent is a modified aliphatic amine for use as an ambient temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 75

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 2098X Curing Agent:**

ANCAMINE 2098X curing agent is a high reactivity, phenol-free, modified aliphatic amine.

Equivalent Wt./{H}: 60

Recommended Use Level, phr (EEW=190): 32

**ANCAMINE 2103X Curing Agent:**

ANCAMINE 2103X curing agent is a rapid-setting, phenol-free, aliphatic polyamine epoxy curing agent.

Equivalent Wt./{H}: 95

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Amidoamines:**

**ANCAMIDE 500 Curing Agent:**

ANCAMIDE 500 curing agent is an amidoamine intended for use with liquid epoxy resins.

Equivalent Wt./{H}: 90

Recommended Use Level, phr (EEW=190): 50

**ANCAMIDE 501 Curing Agent:**

ANCAMIDE 501 curing agent is an accelerated amidoamine for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 68

Recommended Use Level, phr (EEW=190): 35

**ANCAMIDE 502 Curing Agent:**

ANCAMIDE 502 curing agent is an amidoamine intended for curing epoxy resins.

Equivalent Wt./{H}: 90

Recommended Use Level, phr (EEW=190): 50

**ANCAMIDE 503 Curing Agent:**

ANCAMIDE 503 curing agent is an amidoamine for use in curing liquid epoxy resins.

Equivalent Wt./{H}: 90

Recommended Use Level, phr (EEW=190): 50

**ANCAMIDE 506 Curing Agent:**

ANCAMIDE 506 curing agent is an amidoamine with a very high imidazoline content.

Equivalent Wt./{H}: 105

Recommended Use Level, phr (EEW=190): 55

**ANCAMIDE 507 Curing Agent:**

ANCAMIDE 507 curing agent is a polyfunctional, fatty amidoamine for use in curing liquid epoxy resins.

Equivalent Wt./{H}: 65

Recommended Use Level, phr (EEW=190): 35

**ANCAMIDE 2029 Curing Agent:**

ANCAMIDE 2029 curing agent is an amidoamine designed for room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 57

Recommended Use Level, phr (EEW=190): 30

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aromatic Amines:**

**ANCAMINE D Curing Agent:**

ANCAMINE D curing agent for liquid epoxy resins is a blend of aromatic amines.

Equivalent Wt./{H}: 50

Recommended Use Level, phr (EEW=190): 27

**ANCAMINE DDM Curing Agent:**

ANCAMINE DDM curing agent (97% 4,4'-diaminodiphenyl methane, also known as MDA) is an elevated-temperature curative for liquid epoxy resins.

Equivalent Wt./{H}: 50

Recommended Use Level, phr (EEW=190): 27

**ANCAMINE SRX Curing Agent:**

ANCAMINE SRX curing agent is an aromatic polyamine, of superior performance to MDA, used for the elevated temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 68

Recommended Use Level, phr (EEW=190): 35-40

**ANCAMINE SP Curing Agent:**

ANCAMINE SP curing agent-4,4'-diamino diphenyl sulfone (4,4'-DDS)-is a latent curing agent for epoxy resins.

Equivalent Wt./{H}: 62

Recommended Use Level, phr (EEW=190): 33-36

**ANCAMINE 33-S Curing Agent:**

ANCAMINE 33-S curing agent, (3,3'-diamino diphenyl sulfone) is a latent curing agent for epoxy resins.

Equivalent Wt./{H}: 62

Recommended Use Level, phr (EEW=190): 33-36

**ANCAMINE 1482 Curing Agent:**

ANCAMINE 1482 curing agent is a liquid, eutectic mixture of aromatic amines designed to cure liquid epoxy resins.

Equivalent Wt./{H}: 37

Recommended Use Level, phr (EEW=190): 19

**ANCAMINE 2062 Curing Agent:**

ANCAMINE 2062 curing agent is a low viscosity blend of aromatic amines that contains no MDA.

Equivalent Wt./{H}: 38

Recommended Use Level, phr (EEW=190): 20

**AMICURE 101 Curing Agent:**

AMICURE 101 curing agent for epoxy resins is a proprietary, non-MDA, aromatic amine.

Amine Equivalent Weight: 48-49

Recommended Use Level, phr: 26

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aromatic Amines (Continued):****ANCAMINE LO Curing Agent:**

ANCAMINE LO curing agent is a modified aromatic amine curing agent for use with liquid epoxy resins.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE LOS Curing Agent:**

ANCAMINE LOS curing agent is a modified aromatic amine for use in the room temperature curing of epoxy resins.

Equivalent Wt./{H}: 98

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE LT Curing Agent:**

ANCAMINE LT curing agent is a modified aromatic amine designed to cure to temperatures as low as 25F.

Equivalent Wt./{H}: 98

Recommended Use Level, phr: 50

**ANCAMINE TL Curing Agent:**

ANCAMINE TL curing agent is a low odor, low irritation potential, modified aromatic amine for curing liquid epoxy resins.

Equivalent Wt./{H}: 118

Recommended Use Level, phr (EEW=190): 60

**ANCAMINE TLS Curing Agent:**

ANCAMINE TLS curing agent is a low odor, low irritation potential, modified aromatic amine for curing liquid epoxy resins.

Equivalent Wt./{H}: 113

Recommended Use Level, phr (EEW=190): 60

**ANCAMINE 1788 Curing Agent:**

ANCAMINE 1788 curing agent is a solid adduct of an aromatic amine and an epoxy resin.

Equivalent Wt./{H}: 130

Recommended Use Level, phr (EEW=675-760): 18-22

**ANCAMINE 2007 Curing Agent:**

ANCAMINE 2007 curing agent is a low viscosity, formulated, aromatic amine for use in curing liquid epoxy resins.

Equivalent Wt./{H}: 113

Recommended Use Level, phr (EEW=190) 60

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Aromatic Amines (Continued):**

**ANCAMINE 2007S Curing Agent:**

ANCAMINE 2007S curing agent is a low viscosity formulated aromatic amine curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 113

Recommended Use Level, phr (EEW=190): 60

**ANCAMINE 2038 Curing Agent:**

ANCAMINE 2038 curing agent is a low viscosity curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 63

Recommended Use Level, phr (EEW=190): 33

**ANCAMINE 2056 Curing Agent:**

ANCAMINE 2056 curing agent is a formulated aromatic amine for use with liquid epoxy resins.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 2087X Curing Agent:**

ANCAMINE 2087X curing agent is a high-performance polyaromatic amine designed for use as an underwater curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50-70

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Cycloaliphatic Amines:****ANCAMINE 1770 Curing Agent:**

ANCAMINE 1770 curing agent is an unmodified cycloaliphatic amine used to cure epoxy resins at elevated temperatures.

Equivalent Wt./{H}: 29

Recommended Use Level, phr (EEW=190): 17

**ANCAMINE 2049 Curing Agent:**

ANCAMINE 2049 curing agent is an unmodified cycloaliphatic amine used to cure epoxy resins at elevated temperatures.

Equivalent Wt./{H}: 60

Recommended Use Level, phr (EEW=190): 32

**AMICURE PACM Curing Agent:**

AMICURE PACM curing agent is an unmodified cycloaliphatic amine.

Equivalent Wt./{H}: 52.5

Recommended Use Level, phr (EEW=190): 28

**ANCAMINE MCA Curing Agent:**

ANCAMINE MCA curing agent is a modified cycloaliphatic amine which, when cured, provides high reactivity, good color and reasonable color stability.

Equivalent Wt./{H}: 101

Recommended Use Level, phr (EEW=190): 55

**ANCAMINE 1365 Curing Agent:**

ANCAMINE 1365 curing agent is a modified cycloaliphatic amine of the Mannich-Base type.

Equivalent Wt./{H}: 65

Recommended Use Level, phr (EEW=190): 35

**ANCAMINE 1561 Curing Agent:**

ANCAMINE 1561 curing agent is an accelerated cycloaliphatic amine with very low viscosity, excellent color and the ability to cure rapidly at low temperatures.

Equivalent Wt./{H}: 85

Recommended Use Level, phr (EEW=190): 45

**ANCAMINE 1618 Curing Agent:**

ANCAMINE 1618 curing agent is a modified cycloaliphatic amine intended for room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 113

Recommended Use Level, phr (EEW=190): 60

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents:  
Cycloaliphatic Amines (Continued):**

**ANCAMINE 1618-F Curing Agent:**

ANCAMINE 1618-F curing agent is a cycloaliphatic amine for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 115

Recommended Use Level, phr (EEW=190): 60

**ANCAMINE 1693 Curing Agent:**

ANCAMINE 1693 curing agent is a modified cycloaliphatic amine designed as a room temperature curative for liquid epoxy resins.

Equivalent Wt./{H}: 96

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 1704 Curing Agent:**

ANCAMINE 1704 curing agent is a modified cycloaliphatic amine designed for room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 78

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 1721 Curing Agent:**

ANCAMINE 1721 curing agent is a modified cycloaliphatic amine designed for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 76

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 1732 Curing Agent:**

ANCAMINE 1732 curing agent is a chemically modified cycloaliphatic amine intended for room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 53

Recommended Use Level, phr (EEW=190): 30

**ANCAMINE 1882 Curing Agent:**

ANCAMINE 1882 curing agent is a modified cycloaliphatic/aliphatic amine.

Equivalent Wt./{H}: 92

Recommended Use Level, phr (EEW=190): 48

**ANCAMINE 1884 Curing Agent:**

ANCAMINE 1884 curing agent is a formulated cycloaliphatic amine hardener for liquid epoxy resins.

Equivalent Wt./{H}: 86

Recommended Use Level, phr (EEW=190): 45

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents:  
Cycloaliphatic Amines (Continued):****ANCAMINE 1895 Curing Agent:**

ANCAMINE 1895 curing agent is a moderate viscosity, color-stable cycloaliphatic amine adduct which cures rapidly at temperatures as low as 35-40F.

Equivalent Wt./{H}: 75

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 1934 Curing Agent:**

ANCAMINE 1934 curing agent is a formulated cycloaliphatic amine designed for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 100

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 1955 Curing Agent:**

ANCAMINE 1955 curing agent is a cycloaliphatic amine designed for use in the accelerated ambient temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 57

Recommended Use Level, phr (EEW=190): 30

**ANCAMINE 2072 Curing Agent:**

ANCAMINE 2072 curing agent is a phenol-free, modified cycloaliphatic amine.

Equivalent Weight/{H}: 102

Recommended Use Level, phr (EEW=190): 55

**ANCAMINE 2073 Curing Agent:**

ANCAMINE 2073 curing agent is a phenol-free modified cycloaliphatic amine intended for use as an ambient temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 78

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 2074 Curing Agent:**

ANCAMINE 2074 curing agent is a modified cycloaliphatic/aliphatic amine which, when cured, exhibits a very low viscosity, excellent color and good color stability.

Equivalent Wt./{H}: 92

Recommended Use Level, phr (EEW=190): 50

**ANCAMINE 2075 Curing Agent:**

ANCAMINE 2075 curing agent is a very low viscosity, modified cycloaliphatic amine designed for ambient temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 76

Recommended Use Level, phr (EEW=190): 40

**ANCAMINE 2116X Curing Agent:**

ANCAMINE 2116X curing agent is a low viscosity cycloaliphatic amine adduct for use in the ambient temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 75

Recommended Use Level, phr (EEW=190): 40



**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents:  
Polyamides:**

**ANCAMIDE 100 Curing Agent:**

ANCAMIDE 100 curing agent is one in a series of standard reactive polyamides for use in the curing of epoxy resins.

Equivalent Wt./{H}: 535

Recommended Use Level, phr (EEW=510): 85-100

**ANCAMIDE 100-IT-60 Curing Agent:**

ANCAMIDE 100 curing agent is one of a series of standard reactive polyamides for use in the curing of epoxy resins.

Equivalent Wt./{H}: 733

Recommended Use Level, phr (EEW=510): 140-165

**ANCAMIDE 100-X-65 Curing Agent:**

ANCAMIDE 100-X-65 curing agent is a member of a series of standard reactive polyamides intended for use in the curing of epoxy resins.

Equivalent Wt./{H}: 680

Recommended Use Level, phr (EEW=500): 160-180

**ANCAMIDE 220 Curing Agent:**

ANCAMIDE 220 curing agent is one in a series of standard reactive polyamides for use in the curing of epoxy resins.

Equivalent Wt./{H}: 185

Recommended Use Level,  
phr, with liquid resin (EEW=190): 90-100  
phr, with solid resin (EEW=510): 35-40

**ANCAMIDE 220-IPA-73 Curing Agent:**

ANCAMIDE 220 curing agent is one in a series of standard reactive polyamides intended for curing epoxy resins.

Equivalent Wt./{H}: 253

Recommended Use Level, phr (EEW=510): 45-60

**ANCAMIDE 220-X-70 Curing Agent:**

ANCAMIDE 220 curing agent is one in a series of standard reactive polyamides intended for use in the curing of epoxy resins.

Equivalent Wt./{H}: 264

Recommended Use Level, phr (EEW=510): 50-55

**ANCAMIDE 260A Curing Agent:**

ANCAMIDE 260A curing agent is one in a series of standard reactive liquid polyamides developed specifically for use in the curing of epoxy resins.

Equivalent Wt./{H}: 120

Recommended Use Level, phr (EEW=190): 65

**PACIFIC ANCHOR CHEMICAL CORP.: Epoxy Curing Agents: Polyamides  
(Continued):****ANCAMIDE 260TN Curing Agent:**

ANCAMIDE 260TN curing agent is a member of a series of standard reactive liquid polyamides developed specifically for the curing of epoxy resins.

Equivalent Wt./{H}: 120

Recommended Use Level, phr (EEW=190): 65

**ANCAMIDE 350A Curing Agent:**

ANCAMIDE 350A curing agent is one in a series of standard reactive liquid polyamides designed for use in the curing of epoxy resins.

Equivalent Wt./{H}: 100

Recommended Use Level, phr (EEW=190): 55

**ANCAMIDE 400 Curing Agent:**

ANCAMIDE 400 curing agent is a unique, low viscosity reactive polyamide developed specifically for use in the curing of liquid epoxy resins.

Equivalent Wt./{H}: 95

Recommended Use Level, phr (EEW=190): 50

**ANCAMIDE 440-BX-60 Curing Agent:**

ANCAMIDE 440-BX-60 curing agent is an epoxy adduct of ANCAMIDE 220 curing agent, supplied as a 60% solids by weight solution in xylene/n-butanol (4:1 by weight).

Equivalent Wt./{H}: 370

Recommended Use Level, phr (EEW=510): 65-70

**ANCAMIDE 700-B-75 Curing Agent:**

ANCAMIDE 700-B-75 curing agent is a polyamide/epoxy adduct cut to 75% solids by weight in n-butanol.

Equivalent Wt./{H}: 170

Recommended Use Level, phr (EEW=190): 90

**ANCAMIDE 2033 Curing Agent:**

ANCAMIDE 2033 curing agent is a rubber-modified polyamide designed for use as a room temperature curing agent for liquid epoxy resins.

Equivalent Wt./{H}: 87

Recommended Use Level, phr (EEW=190): 50

**ANCAMIDE 2050 Curing Agent:**

ANCAMIDE 2050 curing agent is a special polyamide adduct designed for use with liquid epoxy resins.

Equivalent Wt./{H}: 150

Recommended Use Level, phr (EEW=190): 70-100

**ANCAMIDE 2066 Curing Agent:**

ANCAMIDE 2066 curing agent is a special polyamide adduct designed for use with liquid epoxy resins.

Equivalent Wt./{H}: 150

Recommended Use Level, phr (EEW=190): 70

**ANCAMIDE 2099X Curing Agent:**

ANCAMIDE 2099X curing agent is a CTBN-modified polyamide designed for use in the room temperature curing of liquid epoxy resins.

Equivalent Wt./{H}: 115

Recommended Use Level, phr (EEW=190): 60

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: BF3 Complexes:**

**ANCHOR 1907 Curing Agent**

BF3:Benzyllamine, an accelerator for epoxy hardener systems and for the catalytic hardening of epoxy resins.

Appearance: Off-White Powder

Melting Point, F: 275

Density (lb/gal) @ 77F: 11.3

Nitrogen Content, %: 8

Recommended Use Level, phr: 3

**ANCHOR 1948 Curing Agent:**

An unmodified complex of boron trifluoride and monoethylamine.

Appearance: Off-White Powder

Melting Point, F: 185

Specific Gravity: 1.38

Density (lb/gal) @ 77F: 11.5

Recommended Use Level, phr: 2-5

**ANCHOR 1040 Curing Agent:**

Boron Trifluoride/Amine Complex

Lewis Acid Catalyst for Epoxies

Appearance: Orange-to-Red Non-Hydroscopic Liquid

Color (Gardner): 18

Viscosity @ 77F, poise: 200

Density (lb/gal) @ 77F: 9.4

Activation Temp., F: 266

Flash Pt. (closed cup), F: 216

Recommended Use Level, phr: 6-10

**ANCHOR 1115 Curing Agent:**

Boron Trifluoride/Amine Complex

Lewis Acid Catalyst for Epoxies

Appearance: Orange-to-Red Non-Hydroscopic Liquid

Color (Gardner): 17

Viscosity @ 77F, poise: 17

Density (lb/gal) @ 77F: 9.6

Activation Temp., F: 266

Flash Pt. (closed cup), F: 198

Recommended Use Level, phr: 7.5

**ANCHOR 1170 Curing Agent:**

Boron Trifluoride/Amine Complex

Lewis Acid Catalyst for Epoxies

Appearance: Orange-to-Red Non-Hydroscopic Liquid

Color (Gardner): 14

Viscosity @ 77F, poise: 80

Density (lb/gal) @ 77F: 10.4

Activation Temp., F: 104-122

Flash Pt. (closed cup), F: 399

Recommended Use Level, phr: 5-11

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: BF3 Complexes (Continued):****ANCHOR 1171 Curing Agent:**

Boron Trifluoride/Amine Complex  
Lewis Acid Catalyst for Epoxies  
Appearance: Orange-to-Red Non-Hydroscopic Liquid  
Color (Gardner): 14  
Viscosity @ 77F, poise: 120  
Density (lb/gal) @ 77F: 10.2  
Activation Temp., F: 122-148  
Flash Pt. (closed cup), F: 399  
Recommended Use Level, phr: 5

**ANCHOR 1222 Curing Agent:**

Boron Trifluoride/Amine Complex  
Lewis Acid Catalyst for Epoxies  
Appearance: Orange-to-Red, Non-Hydroscopic Liquid  
Color (Gardner): 9  
Viscosity @ 77F, poise: 6  
Density (lb/gal) @ 77F: 9.2  
Activation Temp., F: 302  
Flash Pt. (closed cup), F: 262  
Recommended Use Level, phr: 7.5-12.5

**ANCHOR 1973 Curing Agent:**

A solution of a boron trifluoride amine complex.  
Appearance: Clear Purple Liquid  
Viscosity @ 77F, poise: 20  
Specific Gravity @ 77F: 1.17  
Flash Pt. (closed cup), F: 225  
Recommended Use Level, phr (EEW=190): 5-15

**ANCHOR 2044 Curing Agent:**

A liquid boron trifluoride hardener  
Appearance: Clear Brown Liquid  
Color (Gardner): 8  
Viscosity @ 77F, poise: 4.5  
Specific Gravity @ 77F: 1.20  
Flash Pt. (closed cup), F: 271  
Recommended Use Level, phr (EEW=190): 30-70

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Dicyanamides:**

**AMICURE CG Curing Agent:**

An unpulverized grade of dicyandiamide containing a low level of inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./[H]: 21  
Particle Size, Mesh: 100 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**AMICURE CG-NA Curing Agent:**

An unpulverized grade of dicyandiamide  
Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Mesh: Coarse, approx.  
Recommended Use Level, phr (EEW=190): 4-15

**AMICURE CG-325 Curing Agent:**

A pulverized grade of dicyandiamide containing a low level (0.5%) of inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Mesh: 325 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**AMICURE CG-1200 Curing Agent:**

A pulverized grade of dicyandiamide containing a low level (0.5%) of an inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity @ 77F: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Microns: 10 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Dicyanamides (Continued):****AMICURE CG-1400 Curing Agent:**

An unpulverized grade of dicyandiamide containing a low level (0.5%) of inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Microns: 5 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**DICYANEX 200-X Curing Agent:**

A pulverized grade of dicyandiamide that does not contain a flow control additive.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Mesh: 200 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**DICYANEX 325 Curing Agent:**

A pulverized grade of dicyandiamide containing a relatively high level (2%-5%) of inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Mesh: 325 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**DICYANEX 1200 Curing Agent:**

A pulverized grade of dicyandiamide containing a relatively high level (2%-5%) of inert flow control additive to inhibit clumping and improve handling.

Appearance: White, Crystalline Solid  
Specific Gravity: 1.39  
Melting Point, F: 403  
Density (lb/gal) @ 77F: 11.6  
Equivalent Wt./{H}: 21  
Particle Size, Microns: 10 approx.  
Recommended Use Level, phr (EEW=190): 4-15

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Imidazoles:**

**IMICURE EMI-24 Curing Agent:**

IMICURE EMI-24 curing agent is a liquid imidazole which functions as both a curing agent and a cure accelerator for high-performance epoxy resin systems. This unusually versatile imidazole is readily processed, and provides excellent physical properties across a wide range of curing temperatures.

IMICURE EMI-24 curing agent is 2-ethyl-4-methyl Imidazole.

IMICURE EMI-24 curing agent provides the following advantages over other imidazole and amine curing agents and accelerators:

- \* Printed Circuit Board Laminates
- \* Filament Winding Applications
- \* Casting Applications
- \* Adhesives
- \* Coatings

**CUREZOL 2E4MZ Curing Agent:**

2-ethyl-4-methylimidazole is an elevated-temperature curing agent for epoxy resins.

Appearance: Pale Yellow Liquid

Color (Gardner): 2

Viscosity @ 77F, poise: 95

Specific Gravity @ 68F: 0.985

Flash Pt. (open cup), F: 324

Recommended Use Level, phr (EEW=190): 2

**CUREZOL C17Z Curing Agent:**

A modified imidazole designed for use as a latent curing agent/cure accelerator for epoxy resins.

Appearance: White Powder

Melting Point, F: 187-192

Boiling Point, F (@ 3 mm Hg): 452-457

Molecular Wt.: 222

Recommended Use Level, phr (EEW=190): 3-5

**CUREZOL 2PZ Curing Agent:**

A modified imidazole designed for use as a latent curing agent/cure accelerator for epoxy resins.

Appearance: Pale Pink Powder

Melting Point, F: 279-296

Boiling Point, F @ 7 mm Hg: 388-392

Molecular Weight: 144

Recommended Use Level, phr (EEW=190): 3-5

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Imidazoles (Continued):****CUREZOL 2E4MZ-CN Curing Agent:**

A liquid modified imidazole  
Appearance: Pale Yellow Liquid  
Viscosity @ 77F, cps: 220  
Molecular Wt.: 151  
Recommended Use Level, phr (EEW=190): 4-6

**CUREZOL 2PZ-CNS Curing Agent:**

A modified imidazole  
Appearance: White Powder  
Melting Point, F: 312-360  
Molecular Wt.: 407  
Recommended Use Level, phr (EEW=190): 6-8

**CUREZOL 2MZ-AZINE-S Curing Agent:**

A micronized solid modified imidazole  
Appearance: White Powder  
Melting Point, F: 477-484  
Particle Size, microns: 4-5  
Molecular Wt.: 219  
Recommended Use Level, phr (EEW=190): 6-8

**CUREZOL 2PHZ Curing Agent:**

A solid imidazole  
Appearance: Yellowish Pink Powder  
Molecular Weight: 204  
Melting Point, F (decomposes): 415-437  
Recommended Use Level, phr (EEW=190): 4-10

**CUREZOL 2PZ-OK Curing Agent:**

A modified imidazole  
Appearance: White Powder  
Melting Point, F (decomposes): 284  
Molecular Weight: 273  
Recommended Use Level, phr (EEW=190): 3-7

**CUREZOL AMZ Curing Agent:**

1-amino-ethyl-2-methylimidazole, a high reactivity liquid imidazole

Appearance: Light-Colored Liquid  
Viscosity @ 77F, cps: 32  
Boiling Point, F: 527-532  
Freezing Point, F: <-4  
Molecular Weight: 125  
Recommended Use Level, phr (EEW=190): 2-4



**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Metal Based Catalysts:**

**ANCHOR 2036 Stabilizer:**

An organo-metallic containing phosphoric acid ester

Appearance: Clear, Semi-Solid Resin

Color (Gardner): 1

Viscosity, poise:

@ 104F: 5,000

@ 140F: 200

Recommended Use Level, phr (EEW=190): 15

**ANCHOR 2037 Stabilizer:**

An organo-metallic containing phosphoric acid ester designed for use as a color stabilizer in epoxy-anhydride cures.

Appearance: Clear Liquid

Color (Gardner): 1

Viscosity @ 77F, poise: 280

Specific Gravity: 1.048

Recommended Use Level, phr (EEW=190): 11

**METACURE T-1 Catalyst:**

A liquid organotin compound that is an effective catalyst for epoxy/anhydride, epoxy homopolymerization and polyurethane reactions.

Appearance: Pale Yellow Liquid

Color (Gardner): 3

Viscosity @ 77F, poise: 0.1

Boiling Point, F (@ 2mm Hg): 266

Total Tin Content, Wt. %: 32.7 to 34.0

Recommended Use Level, phr (EEW=190): 2-10

**METACURE T-9 Catalyst:**

A stannous-type catalyst used in epoxy/anhydride, epoxy homopolymerization and polyurethane systems.

Appearance: Pale Yellow Liquid

Color (Gardner): 3

Viscosity @ 77F, cps: 360

Total Tin Content, Wt. %: 28

Stannous Tin Content, Wt. %: 27

Percent Ratio, %: 96.6

Recommended Use Level, phr (EEW=190): 2-10

**METACURE T-12 Catalyst:**

A high-boiling liquid organotin compound that is used as an effective catalyst in the production of epoxy/anhydride, epoxy homopolymerization and polyurethane systems.

Appearance: Pale Yellow Liquid

Color (Gardner): 3

Viscosity @ 77F, cps: 800

Total Tin Content, Wt. %: 17.7 to 18.6

Chloride Content, Wt. %: 0.15

Acid Number, meq/gm: 170-177

Recommended Use Level, phr (EEW=190): 2-10

**PACIFIC ANCHOR CHEMICAL CORP.: PACIFIC ANCHOR Epoxy Curing Agents: Tertiary Amines:****ANCAMINE K.54 Curing Agent:**

A technical grade of tris-(dimethyl-aminomethyl) phenol - a versatile Lewis Base catalyst for curing epoxy resins.

Appearance: Amber Liquid

Color (Gardner): 6

Viscosity @ 77F, poise: 2.3

Specific Gravity: 0.97

Density (lb/gal) @ 77F: 8.1

Flash Pt. (closed cup), F: 284

Free Water (Dean & Stark), %: 0.5

Typical Purity, %: 97

Recommended Use Level,

phr: 5-15

as an accelerator: 0.5-5

for liquid polysulfide/epoxy cure catalysis: 5-15

**ANCAMINE 1110 Curing Agent:**

A technical grade of dimethylamino-methyl phenol

Appearance: Brown Liquid

Color (Gardner): 10

Viscosity @ 77F, poise: 0.3

Specific Gravity: 1.025

Density (lb/gal) @ 77F: 8.4

Flash Pt. (closed cup), F: 198

Free Water (Dean-stark), %: 0.5

Typical Purity, %: 99.1

Recommended Use Level,

phr:

with liquid resin: 5-15

as an accelerator: 1-10

as a catalyst for anhydride, phenol and acid curing agents: 0.5-2

as a catalyst for epoxy/polysulfide or polymercaptan cures: 5-15

**AMICURE BDMA Curing Agent:**

Benzyl dimethylamine curing agent

Color (Gardner): 1

Molecular Weight: 135.1

Purity (by GLC), %: 99 (min)

Specific Gravity: 0.89-0.91

Refractive Index @ 68F: 1.50

Flash Point (open cup), F: 131

Recommended Use Level,

phr (EEW=190):

as an accelerator: 1-2

as sole curative: 6-10

**PACIFIC ANCHOR CHEMICAL CORP.: Water Dispersible Curing Agents:**

**ANQUAMINE 100 Curing Agent:**

ANQUAMINE 100 curing agent--a modified liquid reactive polyamide--has been developed specifically for use in combination with liquid epoxy resins in the formulation of water-dispersible coatings.

Equivalent Wt./{H}: 190

Recommended Use Level, phr (EEW=190): 100

**ANQUAMINE JD Curing Agent:**

ANQUAMINE JD curing agent is a water dispersible modified polyamide designed for use as a self-emulsifying curing agent for epoxy resins.

Equivalent Wt./{H}: 285

Recommended Use Level, phr (EEW=190): 150

**CASAMID 350PM Curing Agent:**

CASAMID 350PM curing agent is specially designed to emulsify and cure epoxy resins in systems that contain water as the continuous phase.

Equivalent Wt./{H}: 110

Recommended Use Level, phr (EEW=190): 60-90

**CASAMID 360 Curing Agent:**

CASAMID 360 curing agent is a 50% solution of a modified polyamide in water.

Equivalent Wt./{H}: 280

Recommended Use Level, phr (EEW=190): 120-150

**CASAMID 362 Curing Agent:**

CASAMID 362 curing agent is a water dispersible curing agent for long pot life paint systems.

Equivalent Wt./{H}: 240

Recommended Use Level, phr (EEW=190): 120-150

**CASAMID 360W Curing Agent:**

CASAMID 360W curing agent is an improved version of CASAMID 360 curing agent that allows for the production of white and pastel shade coatings due to its reduced color.

Equivalent Wt./{H}: 240

Recommended Use Level, phr (EEW=190): 120-150

**CASAMID 362W Curing Agent:**

CASAMID 362W curing agent is an improved version of CASAMID 362 curing agent that can be used in the production of white and pastel shade coatings due to its reduced color and good color retention properties.

Equivalent Wt./{H}: 240

Recommended Use Level, phr (EEW=190): 120-150

**PMC SPECIALTIES GROUP, INC.: Benzyltrimethylamine:**

Synonyms: N,N-Dimethylbenzylamine  
N,N-Dimethylbenzenemethanamine

C9H13N  
M.W.: 135.2  
CAS Registry No. 103-83-3  
Code: BDMA

**Properties:**

Appearance: Clear nearly colorless liquid  
ASTM Distillation:  
Below 170C: 10%  
Below 182C: 95%  
Flash Point (TAG Open Cup): 142F (61C)  
Solubility in H<sub>2</sub>O @ 25C: 1.1%  
Ionization constant, K:  $8.5 \times 10^{-6}$

**Typical Analysis:**

Assay: 98.8%  
Moisture (Karl Fischer): <0.1%  
Chloride: <0.1%  
Specific Gravity 20C: 0.900  
Refractive Index 25C: 1.498

**Details of Use in Epoxy Resin Formulations:**

Benzyltrimethylamine functions as a relatively slow acting tertiary amine type catalyst in most epoxy systems, affording good pot life, low color, medium high heat distortion temperatures and good electrical properties. It is a satisfactory replacement of o-Methyl benzyltrimethylamine.

In Adhesive Formulations.

In Laminating Resins.

In Potting Compounds.

**Accelerator Applications:**

Benzyltrimethylamine is used as an accelerator in epoxy casting resins using acid anhydride curing agents. Curing cycles are sharply reduced without sacrificing pot life, heat distortion temperatures or electrical properties. Up to 1% benzyltrimethylamine (based on total resin weight) is recommended with phthalic, hexahydrophthalic, dodecenyloxy-succinic, chlorendic and mixed pyromellitic-maleic anhydrides.

**POLYCHEM CORP.: Epoxy Hardener Chart:**

**RT 89:**

Mix Ratio: 2-1

Working Time: 4-5 Hours

Cure: 30 hrs. @ 70F/1 hour @ 150F

Viscosity @ 73F: 75 cps

Low viscosity hardener with long pot life used specifically for flat pieces with small cavities.

**RT 91:**

Mix Ratio: 2-1

Working Time: 50 Minutes

Cure: 18 hrs. @ 70F/1 hour @ 150F

Viscosity @ 73F: 100 cps

Medium viscosity general purpose hardener used for flat applications. Commonly used with 501 resin for filling flat earrings, belt buckles and emblematic pieces.

**RT 92:**

Mix Ratio: 2-1

Working Time: 25 Minutes

Cure: 14 hrs. @ 70F/1/2 hour @ 150F

Viscosity @ 73F: 100 cps

Same general properties as RT 91. Used primarily where a quicker cure is desired.

**RT 94:**

Mix Ratio: 2-1

Working Time: 50 Minutes

Cure: 18 hours @ 70F

Viscosity: Thixotropic

A light thixotropic hardener that is used where there is a slight curve. This hardener is generally used with clear resin or transparent colors where slight doming with a bubble free finish is required.

**RT 95:**

Mix Ratio: 2-1

Working Time: 50 Minutes

Cure: 18 hours @ 70F

Viscosity: Thixotropic

A medium thixotropic hardener that can be used in combination with low or high viscosity resins. Widely used with 501-C and 501 transparent colors to achieve bubble free finishes.

**POLYCHEM CORP.: Epoxy Hardener Chart (Continued):****RT 93:**

Mix Ratio: 2-1  
Working Time: 50 Minutes  
Cure: 18 hours @ 70F  
Viscosity: Thixotropic

A medium thixotropic hardener with the same physical properties as RT 95 but used when a slightly higher viscosity is needed.

**RT 99:**

Mix Ratio: 2-1  
Working Time: 50 Minutes  
Cure: 18 hours @ 70F  
Viscosity @ 73F: Thixotropic

A high thixotropic hardener that is used in similar circumstances as RT 93 or RT 95 but is increased in viscosity for increased holding power.

**HC 911:**

Mix Ratio: 2-1  
Working Time: 2 Hours  
Cure: 24 hrs. @ 70F/8-10 hrs. @ 90-100F/1 hour @ 150F  
Viscosity @ 73F: 250 cps

A very low viscosity hardener with excellent air release properties for use on flat pieces such as suncatchers and emblematic jewelry. Physical properties of this hardener allow curing without bubbles at 90-100F in 8-10 hours.

**HC 912:**

Mix Ratio: 2-1  
Working Time: 2 Hours  
Cure: 24 hrs. @ 70F/8-10 hrs. @ 90-100F/1 hour @ 150F  
Viscosity @ 73F: 2500 cps

A unique hardener that can be used either as a low viscosity or changed to different degrees of gel. The addition of RT 102 gelling agent is used to build up this hardener's viscosity. Used primarily on jewelry pieces with a slight curve to complete hoops. Gives smooth glossy finish without lumpiness or bubbles.

**RT 102:**

Gelling agent to be used with HC 912 to produce low to high viscosities. Addition of this material does not alter working or curing time of HC 912 hardener.

**POLYCHEM CORP.: Epoxy Hardener Chart (Continued):**

**HC 912-94A:**

Mix Ratio: 2-1

Working Time: 2 Hours

Cure: Same as HC 912

Viscosity: Thixotropic

A low viscosity air free gel hardener which has the same physical properties as HC 912. Widely used for coating slightly curved earrings and belt buckles.

**HC 912-95A:**

Mix Ratio: 2-1

Working Time: 2 Hours

Cure: Same as HC 912

Viscosity: Thixotropic

A medium viscosity gel hardener used for doing 3 dimensional coating. Curing and working times are identical to HC 912.

**HC 912-93A:**

Mix Ratio: 2-1

Working Time: 2 Hours

Cure: Same as HC 912

Viscosity: Thixotropic

A high viscosity gel hardener which achieves a smooth bubble free finish on dapped surfaces.

**HC 912-99A:**

Mix Ratio: 2-1

Working Time: 2 Hours

Cure: Same as HC 912

Viscosity: Thixotropic

Super gel, air free hardener which is used for doing the most extreme curves/hoops without dripping or bubbles.

**RT 1:**

Mix Ratio: 1-1

Working Time: 1 1/2 hrs.

Cure: 2 hrs. @ 225F/18 hrs. @ 70F

Viscosity: 800 cps

Excellent adhesive hardener for use in glueing glass, plastic, wood or metals.

**RT 15:**

Mix Ratio: 1-1

Working Time: 1 1/2 hrs.

Cure: Same as RT 1

Viscosity: Thixotropic

Same physical properties as RT 1 but is used where a higher viscosity is required. 553 resin is the recommended resin to use with this hardener.

**RT 108:**

Mix Ratio: 2-1

Working Time: 5-6 mins.

Cure: 20 mins. @ 150F/1 hour @ 70F

Viscosity: 2000 cps

A very quick curing hardener that has excellent adhesive qualities when used on the following substrates, metal, glass, plastic, ceramic and wood.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners:****Polyamides:****37-600:**

Viscosity: solid

Lbs./Gal.: 8.3

Amine Value: 85-95

Recommended Ratio of Hardener to 100 parts of Resin:

37-001: 90-110

Applications and Comments: Coatings

Especially for use with solid resin.

**37-602:**

Viscosity, cps @ 25C (77F): 6,000-10,000

Lbs./Gal.: 8.1

Amine Value: 350-400

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 65-80

Applications and Comments: Adhesives, Coatings

High reactivity, low viscosity, reduced induction time

**37-612:**

Viscosity, cps @ 25C (77F): 10,500-19,000

Lbs./Gal.: 8.1

Amine Value: 330-350

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 60-85

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing

General purpose. Resiliency and adhesion.

**37-615:**

Viscosity, cps @ 25C (77F): 31-38 poise at 170F

Lbs./Gal.: 8.3

Amine Value: 230-245

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 60-100/37-001: 45-65

Applications and Comments: Coatings

Usually used in solution.

**37-625:**

Viscosity, cps @ 25C (77F): 30,000-45,000

Lbs./Gal.: 8.2

Amine Value: 330-370

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 45-70/37-001: 35-60

Applications and Comments: Adhesives, Coatings

Moderately fast reactivity.



**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):**

**Polyamides (Continued):**

**37-640:**

Viscosity, cps @ 25C (77F): 9,000-15,000

Lbs./Gal.: 8.3

Amine Value: 370-400

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 35-60

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing Versatile polyamide. Moderate viscosity.

**37-650:**

Viscosity, cps @ 25C (77F): 3,000-6,500

Lbs./Gal.: 8.4

Amine Value: 220-240

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 65-75/37-001: 45-55

Applications and Comments: Adhesives, Coatings  
Excellent blush and corrosion resistance.

**Polyamide Solutions:**

**37-618:**

Gardner-Holdt: V-Z

Lbs./Gal.: 7.8

Amine Value: 230-245 (solids)

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 60-100 (solids)/37-001: 45-65 (solids)

Applications: Coatings

EPOTUF 37-615, 70% N.V. in Xylene.

**37-621:**

Gardner-Holdt: W-Z1

Lbs./Gal.: 7.6

Amine Value: 85-95 (solids)

Recommended Ratio of Hardener to 100 parts of Resin:

37-001: 90-110 (solids)

Applications and Comments: Coatings

EPOTUF 37-600, 60% in 50% Isopropanol, 50% Toluene

**37-647:**

Gardner-Holdt: Y-Z2

Lbs./Gal.: 7.8

Amine Value: 230-245 (solids)

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 60-100 (solids)/37-001: 45-65 (solids)

Applications and Comments: Coatings

EPOTUF 37-615, 70% N.V. in Aromatic 100

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):****Polyamide Solutions (Continued):****37-664:**

Gardner-Holdt: Y-Z2

Lbs./Gal.: 7.7

Amine Value: 230-245 (solids)

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 60-100 (solids)/37-001: 45-65 (solids)

Applications and Comments: Coatings

EPOTUF 37-615, 73% N.V. in Isopropanol

**37-666:**

Viscosity, cps @ 25C (77F): Z3-Z5

Lbs./Gal.: 7.8

Amine Value: 310-350 (solids)

Recommended Ratio of Hardener to 100 parts of Resin:

60-80 (solids)

Applications and Comments: Coatings

50% N.V. in N-BuOH. Improved epoxy resin compatibility,  
reduced induction times.**Amidoamines:****37-620;**

Viscosity, cps @ 25C (77F): 400-700

Lbs./Gal.: 7.9

Amine Value: 400-450

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 resin (EEW 180-195): 50-100

Volume: EPOTUF 37-140 resin (EEW 180-195): 58-116

Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting, Flooring and Surfacing,  
Hand Lay-Up Laminating and Tooling, Filament Winding

Low viscosity, extremely versatile

**37-630:**

Viscosity, cps @ 25C (77F): 850-1,250

Lbs./Gal.: 8.1

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 resin (EEW 180-195): 35

Volume: EPOTUF 37-140 resin (EEW 180-195): 41

Applications and Comments: Adhesives, Coatings, Electrical  
Potting, Encapsulating and Casting, Flooring and Surfacing,  
Hand Lay-Up Laminating and Tooling

Combines best properties of amido-amines and amines.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):**

**Amidoamines (Continued):**

**37-665:**

Viscosity, cps @ 25C (77F): 1,000-2,500

Lbs./Gal.: 8.0

Amine Value: 580-620

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 45-65

Volume: EPOTUF 37-140 Resin (EEW 180-195): 54-78

Applications and Comments: Coatings

Properties similar to polyamides, but lower viscosity.

**Modified Polyamines:**

**37-601:**

Viscosity, cps @ 25C (77F): 200-400

Lbs./Gal.: 8.4

Wt. per Active H: 84.6

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 45/37-001: 50

Applications and Comments: Coatings, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling

Modified cycloaliphatic, good chemical resistance, high solids coatings.

**37-605:**

Viscosity, cps @ 25C (77F): 700-900

Lbs./Gal.: 8.5

Wt. per Active H: 58.5

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 31/37-001: 35

Applications and Comments: Adhesives, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling

Viscosity, moderately long pot life.

**37-606:**

Viscosity, cps @ 25C (77F): 200-400

Lbs./Gal.: 8.3

Wt. per Active H: 84.6

Recommended Ratio of Hardener to 100 parts of Resin:

37-140: 45/37-001: 52

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Non-blushing. High gloss. Use with polyamides.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):****Modified Polyamines (Continued):****37-607:**

Viscosity, cps @ 25C (77F): 250-400

Lbs./Gal.: 8.6

Wt. per Active H: 84.6

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 45

Volume: EPOTUF 37-140 Resin (EEW 180-195): 52

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Modified cycloaliphatic. Non-blushing. Good chemical resistance.

**37-610:**

Viscosity, cps @ 25C (77F): 200-400

Lbs./Gal.: 8.0

Wt. per Active H: 94.3

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 50

Volume: EPOTUF 37-140 Resin (EEW 180-195): 60

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Imparts resiliency. Resistance to mechanical and thermal shock.

**37-611:**

Viscosity, cps @ 25C (77F): 5,500-8,500

Lbs./Gal.: 8.0

Wt. per Active H: 188.7

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 100

Volume: EPOTUF 37-140 Resin (EEW 180-195): 121

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

High flexibility.

**37-614:**

Viscosity, cps @ 25C (77F): 3,500-5,500

Lbs./Gal.: 9.0

Wt. per Active H: 50.0

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 26

Volume: EPOTUF 37-140 Resin (EEW 180-195): 28

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Excellent general purpose. Good chemical resistance.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):**

**Modified Polyamines (Continued):**

**37-622:**

Viscosity, cps @ 25C (77F): 80-150

Lbs./Gal.: 8.4

Wt. Per Active H: 36.2

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 19

Volume: EPOTUF 37-140 Resin (EEW 180-195): 22

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

General purpose. Low viscosity. Wide use range.

**37-631:**

Viscosity, cps @ 25C (77F): 100-175

Lbs./Gal.: 8.5

Wt. per Active H: 33

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 15-20

Volume: EPOTUF 37-140 Resin (EEW 180-195): 16-21

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Patching compounds, high filler loadings.

**37-632:**

Viscosity, cps @ 25C (77F): 3,000-5,000

Lbs./Gal.: 8.5

Weight Per Active H: 38

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 20

Volume: EPOTUF 37-140 Resin (EEW 180-195): 21

Applications and Comments: Adhesives, Electrical Potting, Encapsulating, and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Good general hardener where fast cures are needed.

**37-633:**

Viscosity, cps @ 25C (77F): 100-175

Lbs./Gal.: 8.5

Weight Per Active H: 33

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: With EPOTUF 37-140 Resin (EEW 180-195): 15-20

Volume: With EPOTUF 37-140 Resin (EEW 180-195): 16-21

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating, and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Lower cost version of 37-631.

**REICHHOLD CHEMICALS, INC.: EPOTUF Epoxy Hardeners (Continued):****Modified Polyamines (Continued):****37-667:**

Viscosity, cps @ 25C (77F): 1,000-1,400

Lbs./Gal.: 8.0

Wt. Per Active H: 157.1

Recommended Ratio Of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 84

Volume: EPOTUF 37-140 Resin (EEW 180-195): 99

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Intermediate in properties between 37-606 and 37-611.

**37-670:**

Viscosity, cps @ 25C (77F): 400-1,000

Lbs./Gal.: 8.6

Wt. Per Active H: 47.5

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 25

Applications and Comments: Adhesives, Coatings, Electrical Potting, Encapsulating and Casting, Flooring and Surfacing, Hand Lay-Up Laminating and Tooling.

Elevated temperature cure, non-MDA based aromatic amine.

**Anhydride:****37-624:**

Viscosity, cps @ 25C (77F): 50-100

Lbs./Gal.: 10.2

Recommended Ratio of Hardener to 100 parts of Resin:

Weight: EPOTUF 37-140 Resin (EEW 180-195): 84

Volume: EPOTUF 37-140 Resin (EEW 180-195): 80

Applications and Comments: Adhesives, Hand Lay-Up and Tooling  
Very low viscosity. Heat cure.

**RHONE-POULENC, INC.: EPI-CURE Curing Agents:**

87:

Highly reactive amine adduct  
Viscosity at 25C, cps: 3900  
Equivalent Weight (on solids): 38  
Pounds/Gallon: 8.9  
Color Gardner (maximum): 6

826:

Low viscosity amine adduct  
Viscosity at 25C, cps: 165  
Equivalent Weight (on solids): 45  
Pounds/Gallon: 8.3  
Color Gardner (maximum): 3

832:

Low viscosity modified cycloaliphatic amine  
Viscosity at 25C, cps: 115  
Equivalent Weight (on solids): 73  
Pounds/Gallon: 8.3  
Color Gardner (maximum): 1

**CMD 834:**

Modified cycloaliphatic amine adduct  
Viscosity at 25C, cps: 350  
Equivalent Weight (on solids): 98  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 4

855:

General purpose amido-amine  
Viscosity at 25C, cps: 225  
Equivalent Weight (on solids): 90  
Pounds/Gallon: 7.9  
Color Gardner (maximum): 13

856:

Lower cost version of EPI-CURE 855  
Viscosity at 25C, cps: 200  
Equivalent Weight (on solids): 90  
Pounds/Gallon: 7.8  
Color Gardner (maximum): 13

870:

Accelerated amido-amine  
Viscosity at 25C, cps: 450  
Equivalent Weight (on solids): 65  
Pounds/Gallon: 8.1  
Color Gardner (maximum): 13

**RHONE-POULENC, INC.: EPI-CURE Curing Agents (Continued):****871:**

Modified aliphatic amine  
Viscosity at 25C, cps: 275  
Equivalent Weight (on solids): 92  
Pounds/Gallon: 8.0  
Color Gardner (maximum): 5

**872:**

Accelerated amido-amine  
Viscosity at 25C, cps: 700  
Equivalent Weight (on solids): 65  
Pounds/Gallon: 8.1  
Color Gardner (maximum): 12

**874:**

Highly reactive aliphatic amine  
Viscosity at 25C, cps: 95  
Equivalent Weight (on solids): 31  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 8

**879:**

Modified aliphatic amine  
Viscosity at 25C, cps: 5500  
Equivalent Weight (on solids): 142  
Pounds/Gallon: 8.1  
Color Gardner (maximum): 2

**892:**

Thixotropic polyamido-amine  
Viscosity at 25C, cps: Thixotropic  
Equivalent Weight (on solids): 133  
Pounds/Gallon: 7.8  
Color Gardner (maximum): 8

**894:**

Modified polyamide  
Viscosity at 25C, cps: 2300  
Equivalent Weight (on solids): 103  
Pounds/gallon: 8.1  
Color Gardner (maximum): 9

**CMD 8303:**

Flexibilized aliphatic amine adduct  
Viscosity at 25C, cps: 2600  
Equivalent Weight (on solids): 157  
Pounds/Gallon: 8.6  
Color Gardner (maximum): 3



**RHONE-POULENC, INC.: EPI-CURE Curing Agents (Continued):**

**CMD 8401:**

Aromatic amine - MDA free  
Viscosity at 25C, cps: 575  
Equivalent Weight (on solids): 38  
Pounds/Gallon: 8.7  
Color Gardner (maximum): 18

**8515:**

Polyamide  
Viscosity at 25C, cps: 3300  
Equivalent Weight (on solids): 170  
Pounds/Gallon: 8.0  
Color Gardner (maximum): 12

**8525:**

Polyamide  
Viscosity at 25C, cps: 950  
Equivalent Weight (on solids): 127  
Pounds/Gallon: 8.0  
Color Gardner (maximum): 12

**8540:**

Lowest viscosity polyamide  
Viscosity at 25C, cps: 475  
Equivalent Weight (on solids): 83  
Pounds/Gallon: 8.0  
Color Gardner (maximum): 9

**8561:**

Lower reactivity version of EPI-CURE 856  
Viscosity at 25C, cps: 325  
Equivalent Weight (on solids): 115  
Pounds/Gallon: 7.8  
Color Gardner (maximum): 15

**8799:**

Light color, low viscosity amine  
Viscosity at 25C, cps: 50  
Equivalent Weight (on solids): 72  
Pounds/Gallon: 7.9  
Color Gardner (maximum): 1

**KJX-42-801:**

Amine adduct solution for solvent and chemical resistance  
Viscosity at 25C, cps: 950  
Equivalent Weight (on solids): 110  
Pounds/Gallon: 8.2  
Color Gardner (maximum): 4  
Solvent: Methyl isobutyl ketone/2-propoxyethanol/xylene

**RHONE-POULENC, INC.: EPI-CURE Curing Agents (Continued):****CMD BX60-820:**

60% Nonvolatile amine adduct solution  
Viscosity at 25C, cps: Z1  
Equivalent Weight (on solids): 140  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 9  
Solvent: Butanol/xylene

**JX60-8500:**

60% nonvolatile solution of polyamide for water resistance  
Viscosity at 25C, cps: Z  
Equivalent Weight (on solids): 350  
Pounds/Gallon: 7.7  
Color Gardner (maximum): 12  
Solvent: 2-propoxyethanol/xylene

**I-73-8515:**

73% nonvolatile solution of EPI-CURE 8515 polyamide  
Viscosity at 25C, cps: Z  
Equivalent Weight (on solids): 170  
Pounds/Gallon: 7.6  
Color Gardner (maximum): 10  
Solvent: Isopropanol

**X-70-8515:**

70% nonvolatile solution of EPI-CURE 8515  
polyamide  
Viscosity at 25C, cps: X  
Equivalent Weight (on solids): 170  
Pounds/Gallon: 7.8  
Color Gardner (maximum): 10  
Solvent: Xylene

**RHONE-POULENC, INC.: EPI-CURE Waterborne/Reducible Curing Agents:**

**W50-8535:**

Ambient curing water soluble amine @ 50% nonvolatile  
Viscosity at 25C, cps: Z5  
Equivalent Weight (on solids): 102  
Pounds/Gallon: 8.8  
Color Gardner (maximum): 12  
Solvent: Water

**CMD JT60-8536:**

60% nonvolatile polyamido-amine for aqueous maintenance coatings  
Viscosity at 25C, cps: Y  
Equivalent Weight (on solids): 324  
Pounds/Gallon: 8.2  
Color Gardner (maximum): 12  
Solvent: 2-butoxyethanol/2-propoxyethanol/toluene

**CMD WJ60-8537:**

60% nonvolatile ambient curing water soluble amine-epoxy adduct  
Viscosity at 25C, cps: Z2  
Equivalent Weight (on solids): 174  
Pounds/Gallon: 9.0  
Color Gardner (maximum): 9  
Solvent: Water/2-propoxyethanol

**CMD J60-8290:**

60% nonvolatile amine adduct for maintenance coatings  
Viscosity at 25C, cps: Z4  
Equivalent Weight (on solids): 163  
Pounds/Gallon: 8.8  
Color Gardner (maximum): 9  
Solvent: 2-propoxyethanol

**SHELL CHEMICAL CO.: EPON CURING AGENTS:****EPON CURING AGENT C-111:**

Chemical Type: Polyamine adduct  
Recommended Concentration Range, PHR: 50  
Physical State: Liquid  
Equivalent Weight: 200  
Lbs/gal: 8.3  
Amine Nitrogen Content %w: 4.4-5.4  
Color Gardner Max: 4  
Viscosity at 25C poise: Q-U

**EPON CURING AGENT C-112:**

Chemical Type: Polyamine adduct  
Recommended Concentration Range, PHR: 50  
Physical State: Liquid  
Equivalent Weight: 200  
Lbs/gal: 8.2  
Amine Nitrogen Content %w: 4.4-5.4  
Color Gardner Max: 4  
Viscosity at 25C poise: K-R

**EPON CURING AGENT H-1:**

Chemical Type: Ketimine  
Recommended Concentration Range, PHR: 28  
Physical State: Liquid  
Equivalent Weight: 52  
Lbs/gal: 7.3  
Amine Nitrogen Content %w: 15.5-17.5  
Color Gardner Max: 5  
Viscosity at 25C poise: 10 cP max

**EPON CURING AGENT H-2:**

Chemical Type: Ketimine  
Recommended Concentration Range, PHR: 30  
Physical State: Liquid  
Equivalent Weight: 55  
Lbs/gal: 7.1  
Amine Nitrogen Content %w: 11-14  
Color Gardner Max: 8  
Viscosity at 25C poise: 2-5 cP

**EPON CURING AGENT H-3:**

Chemical Type: Ketimine adduct  
Recommended Concentration Range, PHR: 54  
Physical State: Liquid  
Equivalent Weight: 101  
Lbs/gal: 8.1  
Amine Nitrogen Content %w: 9.5-11.5  
Color Gardner Max: 8  
Viscosity at 25C poise: 2-5

**EPON CURING AGENT P-101:**

Chemical Type: Amine adduct  
Recommended Concentration Range, PHR: 2-4  
Physical State: Powder  
Lbs/gal: 1.16  
Amine Nitrogen Content %w: 3.5-3.8

**SHELL CHEMICAL CO.: EPON CURING AGENTS (Continued):**

**EPON CURING AGENT P-104:**

Chemical Type: Accelerated dicyandiamide adduct  
Recommended Concentration Range, PHR: 2-5  
Physical State: Powder  
Lbs/gal: 1.26  
Amine Nitrogen Content %w: 1.7-2.1

**EPON CURING AGENT P-108:**

Chemical Type: Accelerated dicyandiamide adduct  
Recommended Concentration Range, PHR: 4-6  
Physical State: Powder  
Lbs/gal: 1.38  
Amine Nitrogen Content %w: 0.6-0.8

**EPON CURING AGENT U:**

Chemical Type: Polyamine adduct  
Recommended Concentration Range, PHR: 20-30  
Physical State: Liquid  
Equivalent Weight: 48  
Lbs/gal: 9.1  
Amine Nitrogen Content %w: 18-21  
Color Gardner Max: 8  
Viscosity at 25C poise: 60-150

**EPON CURING AGENT Y:**

Chemical Type: Aromatic amine  
Recommended Concentration Range, PHR: 25  
Physical State: Liquid  
Equivalent Weight: 48  
Lbs/gal: 9.4  
Amine Nitrogen Content %w: 13-16  
Viscosity at 25C poise: 5-20

**EPON CURING AGENT Z:**

Chemical Type: Aromatic amine  
Recommended Concentration Range, PHR: 19-21  
Physical State: Liquid  
Equivalent Weight: 38  
Lbs/gal: 9.5  
Amine Nitrogen Content %w: 17-19  
Viscosity at 25C poise: 15-40

**SHELL CHEMICAL CO.: EPON CURING AGENTS-Polyamide and Amidoamine:****EPON CURING AGENT V-15:**

Chemical Type: Polyamide  
Recommended Concentration Range, PHR: 33-133  
Physical State: Liquid  
Equivalent Weight: 240  
Lbs/gal: 8.1  
Amine Value: 230-246  
Color Gardner Max: 9  
Viscosity poise: 31-38

**EPON CURING AGENT V-25:**

Chemical Type: Polyamide  
Recommended Concentration Range, PHR: 33-133  
Physical State: Liquid  
Equivalent Weight: 163  
Lbs/gal: 8.1  
Amine Value: 330-360  
Color Gardner Max: 9  
Viscosity poise: 7-9

**EPON CURING AGENT V-40:**

Chemical Type: Polyamide  
Recommended Concentration Range, PHR: 33-133  
Physical State: Liquid  
Equivalent Weight: 140  
Lbs/gal: 8.1  
Amine Value: 370-400  
Color Gardner Max: 9  
Viscosity poise: 68-164

**EPON CURING AGENT V-50:**

Chemical Type: Amidoamine  
Recommended Concentration Range, PHR: 50-100  
Physical State: Liquid  
Equivalent Weight: 130  
Lbs/gal: 7.9  
Amine Value: 425-450  
Color Gardner Max: 10  
Viscosity poise: 5-10

**EPON CURING AGENT F-5:**

Chemical Type: Amidoamine  
Recommended Concentration Range, PHR: 40  
Physical State: Liquid  
Equivalent Weight: 90  
Lbs/gal: 7.9  
Amine Value: 420-470  
Color Gardner Max: 10  
Viscosity poise: 2.5-3.5

**SHELL CHEMICAL CO.: EPON CURING AGENTS--Polyamide Solutions:**

**EPON CURING AGENTS--Polyamide Solutions:**

**EPON CURING AGENT V-15-X-70:**

Chemical Type: Polyamide Solution  
Recommended Concentration Range, PHR: 79  
Physical State: Liquid  
Lbs/gal: 7.8  
Amine Value: 161-173  
Color Gardner Max: 9  
Viscosity poise: 3-8  
%w Solids: 70

**EPON CURING AGENT V-30-XF-60:**

Chemical Type: Polyamide Adduct Solution  
Recommended Concentration Range, PHR: 100  
Physical State: Liquid  
Lbs/gal: 7.8  
Amine Value: 115-130  
Color Gardner Max: 9  
Viscosity poise: 9-14  
%w Solids: 60

**SYNTHON, INC.: ACTIRON Accelerators/Catalysts:**

**ACTIRON NX-1:**

Dimethyl amino methyl phenol. Tertiary amine functionality primarily in the ortho or para position. Accelerates most polysulfide, polyamide and anhydride based hardeners.

**ACTIRON NX-3:**

2,4,6 Tri dimethyl amino methyl phenol. Accelerates most polysulfide, polyamide and anhydride based hardeners. Faster acceleration versus ACTIRON NX-1 due to tris functionality. May also be used as a urethane catalyst.

**ACTIRON NX-91:**

Benzyl dimethyl amine (BDMA). Accelerates most anhydride based hardeners. Not as active as ACTIRON NX-1 or ACTIRON NX-3 due to the lack of the phenolic structure. May also be used as a urethane catalyst.

**ACTIRON NXJ-60:**

2-Propyl imidazole accelerator for anhydride or dicyandiamide based hardeners. May also be used alone as a hardener.

**Hardener:**

**MODAREZ HPF-246P:**

A solid phenolic novolac hardener for epoxy resins. Designed for molding powders for the electronics industry and powder coatings industry.

**ACTIRON NX-1 and NX-3:**

**ACTIRON NX-1:**

Dimethylaminomethylphenol

**ACTIRON NX-3:**

2,4,6-Tris (dimethylaminomethyl) phenol

**ACTIRON NX 91:**

N,N Dimethyl benzylamine: C9H13N.

**ACTIRON NX-91 Powder:**

Active Ingredient: 70% (of ACTIRON NX-91)

**ACTIRON NXJ60:**

2 Propylimidazole



**UNION CAMP CORP.: UNI-REZ Polyamide Curing Agents:**

**UNI-REZ 2100:**

Solids, % by weight: 100

Solvent:----

Amine Number: 85-95

**UNI-REZ 2100-X65:**

Solids, % by weight: 63.5-66

Solvent: Xylene

Amine Number of Solution: 55-65

**UNI-REZ 2400:**

Solids, % by weight: 59-61.5

Solvent: 1:1 Toluene Isopropanol

Amine Number of Solution: 50-57

**UNI-REZ 2115:**

Solids, % by weight: 100

Amine Number: 230-250

**UNI-REZ 2115-175:**

Solids, % by weight: 74-76

Solvent: Isopropanol

Amine Number of Solution: 174-190

**UNI-REZ 2415:**

Solids, % by weight: 69-71

Solvent: Xylene

Amine Number of Solution: 160-175

**UNI-REZ 2180-B75:**

Solids, % by weight: 74-76

Solvent: n-Butanol

Amine Number of Solution: 235-260

**UNI-REZ 2125:**

Solids, % by weight: 100

Amine Number: 335-360

**UNI-REZ 2140:**

Solids, % by weight: 100

Amine Number: 370-400

**UNI-REZ 2142:**

Solids, % by weight: 100

Amine Number: 445-475

**UNI-REZ 2355:**

Solids, % by weight: 100

Amine Number: 530-570

**UNI-REZ 2511:**

Solids, % by weight: 78.5-81.5

Solvent: Ethylene glycol monobutyl ether

Amine Number of Solution: 205-235

**UNI-REZ 2800:**

Solids, % by weight: 100

Amine Number: 425-465

**UNI-REZ 2810:**

Solids, % by weight: 100

Amine Number: 580-620

**UNI-REZ 2850:**

Solids, % by weight: 100

Amine Number: 425-460

**Section III**

**Epoxy Compounds**

**ABLESTIK LABORATORIES: Hybrid Pastes:**

**ABLEBOND 77-1S:**

One Component SMD Adhesive

ABLEBOND 77-1S one component, solvent-free, insulative epoxy adhesive is designed for attaching surface mounted devices (SMDs) to printed circuit boards prior to wave solder.

**ABLEBOND 77-2LTC:**

Low Temperature Cure SMD Adhesive

ABLEBOND 77-2LTC one component, solvent-free, insulative epoxy adhesive is designed to cure at temperatures as low as 80C.

**ABLEBOND 84-1LM1:**

High Purity, Electrically Conductive Epoxy Adhesive

ABLEBOND 84-1LM1 silver filled, electrically conductive epoxy adhesive exhibits extremely low levels of water extractable ionic impurities, making it one of the cleanest die attach adhesives available.

**ABLEBOND 84-1LMINB1:**

Electrically Conductive, High Purity, Hybrid Component Attach Adhesive

ABLEBOND 84-1LMINB1 silver filled, electrically conductive epoxy adhesive is formulated to bond difficult-to-wet surfaces, such as palladium-silver capacitor terminations. Tests indicate that ABLEBOND 84-1LMINB1 reduces capacitor shorting problems caused by resin bleed.

**ABLEBOND 84-1LMIT1:**

Thermally Conductive Hybrid Chip Attach Adhesive

ABLEBOND 84-1LMIT1 hybrid chip adhesive is silver filled and electrically conductive. It exhibits a thermal conductivity of 2.1 BTU ft -1 hr -1 F -1.

**ABLEBOND 85-1:**

Gold Filled Epoxy Adhesive

ABLEBOND 85-1 gold filled, electrically conductive epoxy adhesive is designed for hybrid applications where silver migration is a critical concern.

**ABLEBOND 86-1LV:**

Low Migrating, Electrically Conductive Adhesive

ABLEBOND 86-1LV electrically conductive adhesive is a lower viscosity version of ABLEBOND 86-1. The ABLEBOND 86-series of silver palladium filled adhesives exhibits low silver migration and provides a relatively inexpensive alternative to gold filled epoxies.

**ABLESTIK LABORATORIES: Hybrid Pastes (Continued):****ABLEBOND 789-3:**

Moisture Resistant Adhesive

ABLEBOND 789-3 one component, high strength, toughened adhesive is designed for microelectronic applications, including substrate attach and package sealing which require good moisture resistance.

**ABLEBOND 789-4:**

Thermally Conductive Adhesive

ABLEBOND 789-4 one component, thermally conductive adhesive is designed for substrate attach and sealing microelectronic packages. The adhesive provides four times more thermal conductivity than unfilled epoxy adhesives.

**ABLEBOND 958-7:**

Stress-Absorbing Hybrid Adhesive

ABLEBOND 958-7 silver-filled, electrically conductive epoxy adhesive is designed for hybrid die attach.

**ABLEBOND 958-11:**

Electrically Insulating Stress-Absorbing Adhesive

ABLEBOND 958-11 electrically insulating adhesive is designed to absorb stresses produced when bonding large ICs.

**ABLEBOND 967-1:**

Low Temperature Cure Chip Adhesive

ABLEBOND 967-1 two-component, silver filled, electrically conductive epoxy adhesive is designed for applications which require electrical conductivity at lower-than-normal cure temperatures.

**ABLEBOND 967-3:**

Low Temperature Cure Chip Adhesive

ABLEBOND 967-3 adhesive is an electrically insulating version of ABLEBOND 967-1. This two-component, solvent-free adhesive designed for applications which require lower-than-normal cure temperatures.

**ABLEBOND 968-2:**

Electrically Insulating Hybrid Adhesive

ABLEBOND 968-2 one component, electrically insulating epoxy adhesive is designed to meet the supplier requirements of MIL-STD-883C, Method 5011.

**ABLEBOND 8175:**

Electrically Conductive Adhesive for Screen Printing

ABLEBOND 8175 electrically conductive epoxy adhesive is designed for solder replacement in microelectronic applications. This stress-absorbing adhesive may be used with thick film metallizations or plated copper surfaces.

**ABLESTIK LABORATORIES: Hybrid Films:**

**ABLEFILM 550:**

Moisture Resistant Adhesive Film

ABLEFILM 550 glass supported, epoxy adhesive film is designed for substrate attach and sealing microelectronic packages. This toughened epoxy exhibits strong adhesion after exposure to humidity.

**ABLEFILM 550K:**

Thermally Conductive Adhesive Film

ABLEFILM 550K thermally conductive epoxy adhesive is designed for substrate attach and heat sink bonding.

**ABLEFILM ECF550:**

Electrically Conductive, Moisture-Resistant Adhesive Film

ABLEFILM ECF550 silver filled, epoxy adhesive film is designed for microelectronic applications which require electrical conductivity.

**ABLEFILM ECF550X:**

Electrically Conductive Adhesive Film

ABLEFILM ECF550X silver filled, epoxy adhesive film is designed for microelectronic applications which require electrical conductivity. It exhibits electrical conductivity in the x, y and z axes.

**ABLEFILM 561:**

Flexible Adhesive Film

ABLEFILM 561 glass supported, modified epoxy adhesive film is designed for bonding materials with severely mismatched coefficients of thermal expansion.

**ABLEFILM 561K:**

Flexible, Thermally Conductive Adhesive Film

ABLEFILM 561K flexible, thermally conductive adhesive film is designed for bonding materials with mismatched coefficients of thermal expansion.

**ABLEFILM ECF561:**

Electrically Conductive, Flexible Adhesive Film

ABLEFILM ECF561 silver filled adhesive film is a flexible, rubber modified epoxy designed for bonding materials with severely mismatched coefficients of thermal expansion.

**ABLEFILM ECF561E:**

Electrically Conductive, Flexible Adhesive Film

ABLEFILM ECF561E silver filled, adhesive film is a flexible, rubber modified epoxy designed for bonding materials with severely mismatched coefficients of thermal expansion. ABLEFILM ECF561E is electrically conductive in the x, y, and z axes.

**ABLESTIK LABORATORIES: Hybrid Films (Continued):****ABLEFILM ECF563:**

Electrically Conductive, Semi-Resilient Adhesive Film  
ABLEFILM ECF563 silver filled, unsupported epoxy adhesive film is designed to provide very thin, uniform bondlines. It is available in thicknesses ranging from 2 mils to 6 mils. This adhesive film also exhibits low squeeze-out during bonding.

**ABLEFILM ECF564AHF:**

High Thermal Stability, Low Outgassing Electrically Conductive Adhesive Film  
ABLEFILM ECF564AHF adhesive film is the highest flow version of ECF564A, an electrically conductive epoxy adhesive film which meets the supplier requirements of Mil-Std-883C, Method 5011.

**ABLEFILM 570:**

Low Outgassing, High Purity Adhesive Film  
ABLEFILM 570 adhesive film is a high purity epoxy designed to meet the requirements of MIL-STD-883C, Method 5011. It is designed for hybrid substrate attach.

**ABLEFILM 570K:**

Low Outgassing, Thermally Conductive Adhesive Film  
ABLEFILM 570K adhesive film is the thermally conductive version of 570. It is designed to meet the new hybrid adhesive specification, MIL-STD-883C, Method 5011 for substrate attach.

**ABLEFILM ECF571:**

Electrically Conductive Adhesive Film  
ABLEFILM ECF571 electrically conductive, unsupported adhesive film is designed to meet the requirements of MIL-STD-883C, Method 5011.

**ABLEFILM 5020:**

High Purity Adhesive Film  
ABLEFILM 5020 glass supported adhesive film is a higher purity version of ABLEFILM 550. It is designed for substrate attach and sealing microelectronic packages.

**ABLEFILM 5020K:**

High Purity, Thermally Conductive Adhesive Film  
ABLEFILM 5020K glass supported, thermally conductive adhesive film is a higher purity version of ABLEFILM 550K. It is designed for substrate attach.

**ABLEFILM 5025E:**

Electrically Conductive Adhesive Film  
ABLEFILM 5025E Silver filled, unsupported epoxy adhesive film is designed to provide very thin, uniform bondlines. It is available in thicknesses ranging from 2 mils to 6 mils.

**ABLESTIK LABORATORIES: General Adhesives:**

**ABLETHERM 8-2:**

Thermally Conductive Epoxy Adhesive

ABLETHERM 8-2 thermally conductive, resilient epoxy adhesive provides strong bonds to difficult-to-bond metals, such as gold, silver, copper, brass, and solder.

**ABLEBOND 16-1:**

Room Temperature Cure Epoxy Adhesive

ABLEBOND 16-1 two component, silver filled, electrically conductive epoxy adhesive is designed for general purpose applications. This adhesive cures at room temperature, while providing a reasonable work life.

**ABLEBOND 161-3:**

Temperature Resistant Epoxy Adhesive

ABLEBOND 161-3 two component, premixed and frozen, epoxy adhesive is highly filled. This electrically insulating adhesive provides structural strength to 150C and semistructural strength to 300C.

**ABLEBOND 163-4:**

Copper Filled Epoxy Adhesive

ABLEBOND 163-4 copper filled, electrically conductive adhesive is designed for general purpose applications. It provides good electrical and thermal conductivity at a fraction of the cost of silver-filled adhesives.

**ABLEBOND 224-1:**

Room Temperature Cure Epoxy Adhesive

ABLEBOND 224-1 room temperature curing epoxy adhesive develops structural strength rapidly.

**ABLEBOND 293-1:**

General Purpose Instrument Adhesive

ABLEBOND 293-1 resilient epoxy adhesive is designed to provide strong bonds to difficult-to-bond metals.

**ABLEBOND 293-14:**

Electrically Conductive Adhesive

ABLEBOND 293-14 silver filled, electrically conductive epoxy adhesive is designed to provide strong bonds to difficult-to-bond metals, such as nickel, copper, gold, and solder.

**ABLEBOND 342-3.5:**

Room Temperature Cure Epoxy Adhesive

ABLEBOND 342-3.5 room temperature curing epoxy adhesive is designed for applications which require outstanding thermal shock properties.

**ABLESTIK LABORATORIES: General Adhesives (Continued):**

**ABLEBOND 380-5:**

Low Viscosity Potting Compound

ABLEBOND 380-5 filled, low viscosity epoxy is designed for potting and adhesive applications which require a low cure temperature. 380-5 develops handling strength after curing overnight at room temperature.

**ABLEBOND 410-3:**

High Dimensional Stability Adhesive

In the manufacture of computer heads, adhesives are needed to bond ferrite to ceramic and also maintain microdimensional stability when the completed head is exposed to the hostile effects of humidity and thermal cycling.

**ABLEBOND 681-14:**

Screen Printable, Epoxy Adhesive for Bonding Liquid Crystal Displays

ABLEBOND 681-14 one component, B-stageable epoxy adhesive system is ideal for bonding liquid crystal displays.

**ABLEBOND 862-2:**

Room Temperature Cure Epoxy Adhesive

ABLEBOND 862-2 room temperature curing epoxy adhesive is designed for solder pad encapsulation or sealing the head/disc area in floppy disc assemblies.

**ABLEBOND 931-1:**

Low Viscosity Epoxy Adhesive

ABLEBOND 931-1 unfilled, low viscosity epoxy adhesive provides strong bonds to a variety of surfaces, such as glass, alumina, ferrite, aluminum, and steel.



**ACME CHEMICALS & INSULATION CO.: ACME Electronic Electrical Compounds:**

**2215 B/21:**

Liquid Resin and Hardener

2215B is an epoxy resin containing mineral fillers to lower the coefficient of thermal expansion and increase thermal conductivity.

Volume Resistivity 500V/25C: Ohm-Cm:  $1.1 \times 10^{15}$   
Dielectric Strength, Short Time: Volts/Mil: 410

**#2220 and #21:**

Aluminum Filled Resin & Hardener

#2220 is an aluminum filled epoxy compound recommended for adhesive, casting and encapsulating applications.

Volume Resistivity 500V/25C: Ohm-Cm:  $1 \times 10^{15}$   
Heat Distortion @ 264 psi: C: 80

**#2569/#42A:**

Liquid Resin, Hardener

#2569/42A is a heat curing casting and encapsulating compound possessing a long pot life and good high temperature properties.

Volume Resistivity 500V: Ohm-Cm:  $8 \times 10^{15}$   
Dielectric Constant 1K: 4.9

**#2611/#21:**

Liquid Resin and Hardener

#2611/21 is a silica filled room temperature curing system approved for potting and encapsulation of digital modules.

Volume Resistivity 25C: Ohm-Cm:  $2.0 \times 10^{15}$   
Dielectric Strength: V/M: 400-500

**ACME 4045:**

ACME 4045 is an unfilled, low viscosity, two component epoxy resin used for potting or embedment of electrical units.

Volume Resistivity (ohm-cm. at 25C):  $3.5 \times 10^{14}$   
Dissipation Factor (60 cycles at 25C): 0.049

**4045-2:**

ACME 4045-2 is a very economical epoxy compound which exhibits outstanding water resistance intended for potting and embedment of electrical equipment.

Volume Resistivity 77F ohm/cm:  $3.9 \times 10^{14}$   
Dielectric Strength 77F volts/mil: 890

**ACME CHEMICALS & INSULATION CO.: ACME Electronic Electrical Compounds (Continued):**

**ACME 4048 Clear:**

General Purpose Potting Compound

ACME 4048 is an unfilled low viscosity general purpose epoxy system designed for use in applications requiring deep impregnation.

Volume Resistivity 77F ohm/cm:  $20 \times 10^{11}$

Dielectric Strength 77F Volts/Mil: 650 (35 mil sample)

**ACME 4048 A:**

ACME 4048-A is a filled version of ACME 4048. It has a comparatively higher viscosity at room temperature but handles well under vacuum in hot molds.

Volume Resistivity (ohm-cm. at 25C):  $10 \times 10^{13}$

Dissipation Factor (60 cycles at 25C): 0.55

**ACME 4054 TX:**

ACME 4054-TX is a filled, thixotropic, single component epoxy compound that cures by application of heat to a rigid resin of excellent chemical and electrical resistance.

Volume Resistivity (ohm-cm.) at 25C:  $6 \times 10^{14}$

Dissipation Factor (60 cycles) at 25C: 0.065

**ACME 5028:**

ACME 5028 is a solventless, single component, unfilled epoxy dip compound offering total impregnation and excellent coverage of magnetic coil windings in one operation.

Volume Resistivity (ohm-cm. at 25C):  $2.5 \times 10^{13}$

Dielectric Strength (volts/mil at 25C): 850 (.025")

**ACME 5064:**

ACME 5064 is a low-cost and non-abrasive, two component epoxy compound having viscosity characteristics ideally suited for impregnating coil windings.

Volume Resistivity (ohm-cm. at 25C): Over  $3 \times 10^{14}$

Dissipation Factor (60 cycles at 25C): 0.012

**ACME 5067:**

ACME 5067 is a black, two component epoxy compound which cures at 120-135C to a tough, thermal-shock resistant and impact-resistant resin.

Volume Resistivity (ohm-cm. at 25C):  $3 \times 10^{14}$

Dissipation Factor (60 cycles at 25C): .040

**ACME 5078:**

ACME 5078 is a semi-flexible epoxy resin compound formulated for continuous Class F (155C) service.

Volume Resistivity (ohm-cm.) at 25C: Over  $3 \times 10^{14}$

Dissipation Factor (60 cycles) at 25C: 0.018

**ACME CHEMICALS & INSULATION CO.: ACME Electronic Electrical Components (Continued):**

**ACME 5084:**

ACME 5084 is a flexible, room temperature curing, two component epoxy compound intended for potting and casting of electrical/electronic equipment.

Volume Resistivity (ohm-cm. at 25C):  $5 \times 10^{12}$

Dielectric Constant (60 cycles at 25C): 6.2

**ACME 5094 Adhesive:**

A two component epoxy adhesive with excellent bonding characteristics to a wide variety of substrates.

Mix Ratio: 1:1 by volume

Gel Time (100 grams) 77F: 13 minutes

**ACME 5100 FC:**

ACME 5100-FC compound is a single component epoxy compound which cures at 120C to 150C to a tough, semi-rigid resin exhibiting excellent physical properties and retention of outstanding electrical properties up to Class H temperatures.

Volume Resistivity (ohm-cm.) at 25C: Over  $3 \times 10^{14}$

Dissipation Factor (60 cycles) at 25C: 0.023

**ACME 5100 U:**

ACME 5100-U is a clear, unfilled, single component epoxy compound which cures at 135C to a tough, semi-rigid resin.

Volume Resistivity (ohm-cm.) at 25C: Over  $2.6 \times 10^{14}$

Dissipation Factor (60 cycles at 25C): 0.018

**ACME 5116:**

ACME 5116 is a two component, semi-rigid, room temperature curing, epoxy compound intended for large castings, which possesses a non-critical resin-hardener ratio.

Dielectric Strength (Volts/mil at 25C): 450

Dissipation Factor (60 cycles at 25C): 0.025

**ACME 5144:**

ACME 5144 is an unfilled, two component epoxy formulated specifically for potting electrical/electronic equipment such as voltage regulators and electronic ignition systems.

**ACME 5152:**

ACME 5152 is a low viscosity fast curing epoxy potting compound for electrical insulation.

Dielectric Constant @ 1 KHz 25C: 4.5

Dielectric Strength, (V/M @ 25C): 500

**ACME 5153:**

ACME 5153 is a one component clear epoxy electrical insulating compound which provides exceptional service for high temperature applications.

Dissipation Factor 1000 Hz @ 77F: .008

Dielectric Constant 77F: 4.78

**ACME DIVISION: E-SOLDER Electrically Conductive Adhesives:****E-SOLDER 3012:**

One component heat cured silver epoxy adhesive exhibiting extremely high electrical conductivity and excellent adhesion to a wide variety of metals and ceramics.

Cure Schedule: 135C-6 to 18 hrs./150C-1 to 4 hrs./180C-1/2 to 1 hr./200C-10 to 30 min.

**E-SOLDER 3071:**

One component heat cured silver epoxy adhesive, exhibiting very high electrical conductivity. Will withstand short exposure periods of 500C with no loss of conductivity.

Cure Schedule: 120C-3/4 hr./150C-1/4 hr.

**E-SOLDER 3021:**

Fast setting two component room temperature curing silver epoxy adhesive. Mix ratio is non-critical one to one by weight or volume. Easy to apply, good for field repairs.

Hardener Ratio: 1 Part A/1 Part B by Wt. or Vol.

Work Life: 30 min.

Cure Schedule: 25C-24 hrs./65C-3 hrs.

**E-SOLDER 3022:**

Two component, smooth creamy consistency, room temperature curing silver epoxy adhesive. May also be heat cured rapidly at moderate elevated temperatures.

Hardener Ratio: 100 pbw 3022/8 pbw No. 18 Hard.

Work Life: 1-2 hrs.

Cure Schedule: 25C-24 hrs./85C-1 1/2 hrs.

**E-SOLDER 3025:**

General purpose two component long work life room temperature curing silver epoxy adhesive. May also be heat cured. Non-critical one to one by weight or volume mix ratio. Excellent adhesion to copper and brass.

Hardener Ratio: 1 Part A/1 Part B by Wt. or Vol.

Work Life: 4-6 hrs.

Cure Schedule: 25C-24 hrs./65C-4 hrs./100C-15 min.

**E-SOLDER 3026:**

Very flexible two component room temperature or moderate elevated curing silver epoxy adhesive. Can be bent over 1/16" mandrel. Suitable for use on flexible printed circuitry.

Hardener Ratio: 100 pbw 3026/6 1/2 pbw No. 45 Hard.

Work Life: 1 Hr.

Cure Schedule: 65C-4 hr.

**ACME DIVISION: E-SOLDER Electrically Conductive Adhesives  
(Continued):**

**E-SOLDER 3044:**

Fast low temperature curing long work life two component silver epoxy adhesive with excellent electrical properties at 175C.

Hardener Ratio: 100 pbw 3044/8 pbw No. 66 Hard

Work Life: 3-4 hrs.

Cure Schedule: 120C-1 hr./100C-2 hrs.

**E-SOLDER 3056:**

One component pressure sensitive water based adhesive for fabricating pressure sensitive metal foil shielding and non-permanent electrical connections.

**E-SOLDER 3069:**

One component heat sealable silver adhesive. For use in high speed production bonding of lead frames to aluminum foil or aluminized plastic films.

Cure Schedule: 150C-5 sec.

**E-SOLDER 3083:**

Two component smooth, soft silver epoxy adhesive designed specifically for die bonding with a long pot life and low ionics.

Hardener Ratio: 1 Part A/1 Part B by Wt.

Work Life: 5-6 hrs.

Cure Schedule: 80C-90 min./120C-15 min./150C-5 min.

**ACME CHEMICALS & INSULATION CO.: MARASET Tooling Compounds:****Casting Compounds:****13N/680:**

Mix Ratio (Resin to Hardener by Weight): 100/7  
Pot Life (1 lb. Mass - Minutes): 50  
Mixed Viscosity (cps) @ 75F: 16,000

**13N/HH5:**

Mix Ratio (Resin to Hardener by Weight): 100/9  
Pot Life (1 lb. Mass - Minutes): 60  
Mixed Viscosity (cps) @ 75F: 35,000

**M53R/H:**

Mix Ratio (Resin to Hardener by Weight): 100/100  
Pot Life (1 lb. Mass - Minutes): 30  
Mixed Viscosity (cps) @ 75F: 11,800

**610/680:**

Mix Ratio (Resin to Hardener by Weight): 100/9  
Pot Life (1 lb. Mass - Minutes): 45  
Mixed Viscosity (cps) @ 75F: 2,500

**610V/901:**

Mix Ratio (Resin to Hardener by Weight): 100/9  
Pot Life (1 lb. Mass - Minutes): 90  
Mixed Viscosity (cps) @ 75F: 7,800

**612B/22NF:**

Mix Ratio (Resin to Hardener by Weight): 100/10  
Pot Life (1 lb. Mass - Minutes): 40  
Mixed Viscosity (cps) @ 75F: 5,400

**616N/901:**

Mix Ratio (Resin to Hardener by Weight): 100/7.5  
Pot Life (1 lb. Mass - Minutes): 100  
Mixed Viscosity (cps) @ 75F: 16,000

**616N/681:**

Mix Ratio (Resin to Hardener by Weight): 100/7  
Pot Life (1 lb. Mass - Minutes): 60  
Mixed Viscosity (cps) @ 75F: 12,000

**618/900C:**

Mix Ratio (Resin to Hardener by Weight): 100/7.5  
Pot Life (1 lb. Mass - Minutes): 10 Hrs  
Mixed Viscosity (cps) @ 75F: 59,000

**622/680:**

Mix Ratio (Resin to Hardener by Weight): 100/10  
Pot Life (1 lb. Mass - Minutes): 60  
Mixed Viscosity (cps) @ 75F: 2,000

**ACME CHEMICALS & INSULATION CO.: MARASET Tooling Compounds  
(Continued):**

**Casting Compounds (Continued):**

**622/6E:**

Mix Ratio (Resin to Hardener by Weight): 100/10  
Pot Life (1 lb. Mass-Minutes): 120  
Mixed Viscosity (cps) @ 75F: 2,000

**638/45:**

Mix Ratio (Resin to Hardener by Weight): 100/80-120  
Pot Life (1 lb. Mass-Minutes): 50  
Mixed Viscosity (cps) @ 75F: 2,000

**655/555:**

Mix Ratio (Resin to Hardener by Weight): 100/7  
Pot Life (1 lb. Mass-Minutes): 24 Hrs  
Mixed Viscosity (cps) @ 75F: 500

**658/558:**

Mix Ratio (Resin to Hardener by Weight): 100/50  
Pot Life (1 lb. Mass-Minutes): 50  
Mixed Viscosity (cps) @ 75F: 3,000

**676F/86:**

Mix Ratio (Resin to Hardener by Weight): 100/11  
Pot Life (1 lb. Mass-Minutes): 35  
Mixed Viscosity (cps) @ 75F: 15,000

**677F/70:**

Mix Ratio (Resin to Hardener by Weight): 100/6.5  
Pot Life (1 lb. Mass-Minutes): 55  
Mixed Viscosity (cps) @ 75F: 12,000

**Gel Coat:**

**606/21:**

Mix Ratio (Resin to Hardener by Weight): 100/13  
Pot Life (1 lb. Mass-Minutes): 15  
Mixed Viscosity (cps) @ 75F: Non-Flow

**6164-2/21:**

Mix Ratio (Resin to Hardener by Weight): 100/9  
Pot Life (1 lb. Mass-Minutes): 15  
Mixed Viscosity (cps) @ 75F: 2,200

**7-308R/N:**

Mix Ratio (Resin to Hardener by Weight): 100/12  
Pot Life (1 lb. Mass-Minutes): 50  
Mixed Viscosity (cps) @ 75F: Non-Flow

**ACME CHEMICALS & INSULATION CO.: MARASET Tooling Compounds  
(Continued):****Laminating Compounds:****607AA/22NF:**

Mix Ratio (Resin to Hardener by Weight): 100/22  
Pot Life (1 lb. Mass-Minutes): 18  
Mixed Viscosity (cps) @ 75F: 2,700

**608-10/12N:**

Mix Ratio (Resin to Hardener by Weight): 100/20  
Pot Life (1 lb. Mass-Minutes): 25  
Mixed Viscosity (cps) @ 75F: 2,400

**608-10TLS/12NLS:**

Mix Ratio (Resin to Hardener by Weight): 100/12  
Pot Life (1 lb. Mass-Minutes): 30  
Mixed Viscosity (cps) @ 75F: 3,000

**670L/70:**

Mix Ratio (Resin to Hardener by Weight): 100/10  
Pot Life (1 lb. Mass-Minutes): 60  
Mixed Viscosity (cps) @ 75F: 3,500

**Light Weight Paste:****F180R/F181H:**

Mix Ratio (Resin to Hardener by Weight): 100/100  
Pot Life (1 lb. Mass-Minutes): 70  
Mixed Viscosity (cps) @ 75F: Non-Flow

**Repair Paste:****641DR/H:**

Mix Ratio (Resin to Hardener by Weight): 100/100  
Pot Life (1 lb. Mass-Minutes): 15-18  
Mixed Viscosity (cps) @ 75F: Non-Flow

**Splining Paste:****F18R/H:**

Mix Ratio (Resin to Hardener by Weight): 100/50  
Pot Life (1 lb. Mass-Minutes): 15-18  
Mixed Viscosity (cps) @ 75F: Non-Flow



**A.I. TECHNOLOGY, INC.: Room-Temperature "Stress-Free" Tack-Film Adhesives:**

- \* Ultra-high electrical or thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's
- \* Room temperature storage (25C/3 months)
- \* Meet MIL Std 883C/5011.2

These novel epoxies have proven successful in applications such as Alumina to Aluminum substrate attach and large area bare silicon die to Copper and Alumina. All of these materials are storable at room temperature for up to 3 months. Shelf life is extendable by refrigeration.

**RTK 7755:**

Filler: Alumina  
Thermal Conductivity: 12  
Electrical Conductivity: no  
Availability: sheet or custom preform  
Suggested Applications: component attach; substrate attach;  
other insulating, surface mount thermal management applications  
Storage/Shelf Life: 25C/3 mos.//-40C/1 yr.

**RTK 7758:**

Filler: Al. Nitride  
Thermal Conductivity: 25  
Electrical Conductivity: no  
Availability: sheet or custom preform  
Suggested Applications: component attach; substrate attach;  
other insulating, surface mount thermal management applications  
Storage/Shelf Life: 25C/3 mos.//-40C/1 yr.

**RTK 7759:**

Filler: Diamond  
Thermal Conductivity: 80  
Electrical Conductivity: no  
Availability: sheet or custom preform  
Suggested Applications: high power, large area die attach;  
component attach, substrate attach, mis-matched CTE's  
Storage/Shelf Life: 25C/3 mos.//-40C/1 yr.

**RTC 8750:**

Filler: Silver  
Thermal Conductivity: 45  
Electrical Conductivity: yes  
Availability: sheet or custom preform  
Suggested Applications: substrate attach (mismatched),  
component attach, die attach (large area)  
Storage/Shelf Life: 25C/3 mos.//-40C/1 yr.

**A.I. TECHNOLOGY, INC.: Snap Curing Electrically Conductive Epoxy Paste Adhesives:**

- \* Electrical conductivity
- \* High thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

This novel family of snap-curing, epoxy paste adhesives is designed for high manufacturability and productivity and is useful over a wide variety of applications. Unsurpassed thermal and electrical conductivity offers the engineer a solution to the most extreme electronic packaging problems.

**ZME 8155:**

Filler: Gold-based

Special Characteristics: Extremely fast curing; outstanding flexibility; Z-Axis conductive

Availability: 1-component, solvent free paste

Suggested Applications: Die, component and substrate attach; small or large areas

Storage: RT storable for 3 mos./-40C for 1 year

**ME 8155:**

Filler: Silver

Special Characteristics: Extremely fast curing; outstanding flexibility; adequate conductivity

Availability: 1-component, solvent free paste

Suggested Applications: Die, component, and substrate attach; small or large areas

Storage: RT storable for 3 mos./-40C for 1 year

**ME 8452-A:**

Filler: Silver

Special Characteristics: Good flexibility; outstanding conductivity; meets 5011.2

Availability: 1-component, solvent free paste

Suggested Applications: Die, component, and substrate attach; small or large areas

Storage: RT storable for 5 days/-40C for 1 year

**ME 8412-A:**

Filler: Silver

Special Characteristics: High strength; outstanding conductivity; meets 5011.2

Availability: 1-component, solvent free paste

Suggested Applications: Die, component and substrate attach; small to medium size dice; better for CTE matched parts and substrates

Storage: RT storable for 5 days/-40C for 1 year



**A.I. TECHNOLOGY, INC.: "Stress-Free" Epoxy Film Adhesives:**

- \* Ideal for automated applications
- \* High electrical & thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

Solution to the most extreme electronic packaging problems. Room temperature storage and the non-tacky nature of these films make them ideal for high volume, automated pick & place applications.

**ESP 7355:**

Filler: Alumina  
 Thermal Conductivity: 12  
 Electrical Conductivity: no  
 Availability: sheet, custom preform, or roll  
 Suggested Applications: component attach, other insulating, surface mount thermal management applications  
 Storage Shelf Life: 25C/3 mos.//-40C/1 yr.

**ESP 7358:**

Filler: Al. Nitride  
 Thermal Conductivity: 25  
 Electrical Conductivity: no  
 Availability: sheet, custom preform, or roll  
 Suggested Applications: component attach; substrate attach; other insulating, surface mount thermal management applications  
 Storage Shelf Life: 25C/3 mos.//-40C/1 yr.

**ESP 7359:**

Filler: Diamond  
 Thermal Conductivity: 80  
 Electrical Conductivity: no  
 Availability: sheet, custom preform, or roll  
 Suggested Applications: high power, large area die attach; component attach, substrate attach, mismatched CTE's  
 Storage Shelf Life: 25C/3 mos.//-40C/1 yr.

**ESP 8350:**

Filler: Silver  
 Thermal Conductivity: 45  
 Electrical Conductivity: yes  
 Availability: sheet, custom preform, or roll  
 Suggested Applications: substrate attach (mismatched), component attach, die attach (large area)  
 Storage Shelf Life: 25C/3 mos.//-40C/1 yr.

**A.I. TECHNOLOGY, INC.: "Stress-Free" Silver Filled Epoxy Paste Adhesives:**

- \* Ultra-high electrical conductivity
- \* High thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

These novel, low-stress, Ag-filled paste adhesives are useful over a wide variety of applications. ME 8452 is a solvent free material ideal for needle dispense applications. ME 8456 contains a solvent and is more suitable for screen printing while LESP 8350 possesses the ability to be "B-staged", or dried onto the back of a substrate or wafer.

**ME 8452:**

Filler: Silver  
Thermal Conductivity: very high  
Electrical Conductivity: yes  
Availability: 1-component, solvent free paste  
Suggested Applications: Die, component and substrate attach;  
small or large areas  
Storage: -40C  
Shelf Life: 12 mos.

**ME 8456:**

Filler: Silver  
Thermal Conductivity: very high  
Electrical Conductivity: yes  
Availability: 1-component paste, minor solvent modified  
Suggested Applications: Die, component, and substrate  
attach; small or large areas  
Storage: -40C  
Shelf Life: 12 mos.

**LESP 8350:**

Filler: Silver  
Thermal Conductivity: very high  
Electrical Conductivity: yes  
Availability: 1-component paste for "B-Staging"  
Suggested Applications: Die, component and substrate attach;  
can be "B-staged" onto back of wafer or substrate  
Storage: -40C  
Shelf Life: 12 mos.

**Cure Schedules:**

Temperature:	Time:
80C	8 hrs.
100C	4 hrs.
125C	2 hrs.
150C	30 min.
200C	10 min.
300C	10 sec.

**A.I. TECHNOLOGY, INC.: "Stress-Free" SMT Adhesives, Gel,  
& Solder-Replacement:**

- \* Non-migrating solder-replacement
- \* Very high thermal conductivity
- \* Reworkable
- \* Ideal for mismatched CTE's

A solution to the most extreme electronic packaging problems in printed wiring board fabrications.

**ME 7150-SMT:**

Binder/Filler: Flexible Epoxy

Special Characteristics: Unfilled & consistent automatic dispensing

Electrical Conductivity: no

Availability: 1-component, thixotropic, frozen syringes

Suggested Applications: component stacking designed for high speed dispensing and fast curing

Storage: 25C/-40C

Shelf Life: 3 mos./1 yr.

**ME 7155-ANC:**

Binder/Filler: Flexible Epoxy/Al. Nitride

Special Characteristics: "Co-cure" with solder-reflow for precision interconnection

Electrical Conductivity: no

Availability: 1-component, thixotropic, frozen syringes

Suggested Applications: Component attach; substrate attach; other insulating, surface mount thermal management applications

Storage: -40C

Shelf Life: 1 yr.

**ZME 8155:**

Binder/Filler: Flexible Epoxy/"Ag-Sub"

Special Characteristics: Simultaneous thermal management and interconnect soldering

Electrical Conductivity: yes, Z-Axis only

Availability: 1-component, thixotropic

Suggested Applications: solder-replacement, non-migrating

Storage: 25C/-40C

Shelf Life: 3 mos./1 yr.

**ME 8458:**

Binder/Filler: Flexible Epoxy/"Ag-Sub"

Special Characteristics: Non-silver and non-migrating

Electrical Conductivity: yes

Availability: 1-component, thixotropic

Suggested Applications: solder-replacement, non-migrating

Storage: 25C/-40C

Shelf Life: 5 days/1 yr.

**A.I. TECHNOLOGY, INC.: "Stress-Free" Tab Bonding Adhesives,  
Protective Coatings & Thermal Gel:**

- \* Solder-Replacement for outer-lead bonding
- \* High thermal conductivity
- \* Reworkable
- \* Ideal for mismatched CTE's
- \* Maximize heat transfer in all directions

**ME 7155-AN/ZME 8155:**

Binder/Filler: Epoxy/Al. Nitride/Proprietary  
Special Characteristics: very high thermal conductivity,  
ZME 8155 is conductive along Z-Axis to prevent bridging  
Availability: 1-component, frozen  
Suggested Applications: die-attach, electrically insulating  
Storage: -40C  
Shelf life: 1 yr.  
Viscosity (cps): 400,000 thixotropic  
Application/Curing: 80C/8 hrs.//150C/30 min.//200C/3 min.

**UC 3158:**

Binder/Filler: Epoxy/Al. Nitride  
Special Characteristics: UV or thermally curable, ultra low  
ionics  
Availability: paste, thixotropic  
Suggested Applications: outer-lead bonding on gold plating,  
die-attach  
Storage: 25C  
Shelf life: 3 mos.  
Viscosity (cps): 400,000  
Application/Curing: UV at 365 nm intensity dependence

**LESP 7145:**

Binder/Filler: Epoxy/Al. Nitride  
Special Characteristics: thermally conductive, ultra low  
ionics  
Availability: 1-component paste, thixotropic  
Suggested Applications: die-coating, moisture and mechan-  
ical protection  
Storage: -40C  
Shelf life: 1 yr.  
Viscosity (cps): 400,000 thixotropic  
Application/Curing: 80C/60 min.//150C/10 min. depending  
on thickness

**A.I. TECHNOLOGY, INC.: "Stress-Free" Tack-Film Adhesives:**

- \* "Zero-Stress" on bonded parts
- \* Ultra-high electrical or thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

Unsurpassed thermal and electrical conductivity, coupled with A.I.'s unique "flexible" technology offers the engineer a solution to the most extreme electronic packaging problems. These novel epoxies have proven successful in applications such as Alumina to Aluminum substrate attach and large area bare silicon die to Copper and Alumina.

**TK 7755:**

Filler: Alumina  
 Thermal Conductivity: 12  
 Electrical Conductivity: no  
 Availability: sheet or custom preform  
 Suggested Applications: Component attach; substrate attach;  
 other insulating, surface mount thermal management applications.  
 Storage/Shelf Life: -40C/1 yr.

**TK 7758:**

Filler: Al. Nitride  
 Thermal Conductivity: 25  
 Electrical Conductivity: no  
 Availability: sheet or custom preform  
 Suggested Applications: Component attach; substrate attach;  
 other insulating surface mount thermal management applications  
 Storage/Shelf Life: -40C/1 yr.

**TK 7759:**

Filler: Diamond  
 Thermal Conductivity: 80  
 Electrical Conductivity: no  
 Availability: sheet or custom preform  
 Suggested Applications: High power, large area die attach;  
 component attach, substrate attach, mis-matched CTE's.  
 Storage/Shelf Life: -40C/1 yr.

**TC 8750:**

Filler: Silver  
 Thermal Conductivity: 45  
 Electrical Conductivity: yes  
 Availability: sheet or custom preform  
 Suggested Applications: substrate attach (mismatched),  
 component attach, die attach (large area)  
 Storage/Shelf Life: -40C/1 yr.



**A.I. TECHNOLOGY, INC.: "Stress-free" UV Curing Epoxy Adhesives and Coatings:**

- \* 100% solventless materials
- \* "Shadow" curable with heat
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

A solution to the most extreme electronic packaging problems. Once initiated with UV curing, it will continue to cure under ambient and high temperatures in the "shadow" areas.

**UC 3150:**

Filler: unfilled  
Thermal Conductivity: 1  
Availability: 1-component, flowing paste  
Suggested Applications: coatings & adhesive uses  
Storage/Shelf Life: 25C/6 mos.

**UC 3155:**

Filler: Alumina  
Thermal Conductivity: 12  
Availability: 1-component, thixotropic paste  
Suggested Applications: coating & adhesive usage requiring high thermal transfer  
Storage/Shelf Life: 25C/6 mos.

**UC 3158:**

Filler: Al. Nitride  
Thermal Conductivity: 25  
Availability: 1-component, thixotropic paste  
Suggested Applications: coating & adhesive usage requiring high thermal transfer  
Storage/Shelf Life: 25C/6 mos.

**UC 3159:**

Filler: Diamond  
Thermal Conductivity: 80  
Availability: 1-component, thixotropic paste  
Suggested Applications: coating & adhesive usage requiring high thermal transfer  
Storage/Shelf Life: 25C/6 mos.

**Cure Schedules:**

The curing mechanism is a function of proper UV wavelength (365nm), intensity, and time. Shorter wavelengths will induce surface curing or a "wrinkling" effect and also affect depth of cure.

**A.I. TECHNOLOGY, INC.: "Stress-free" 1-Component Epoxy Paste Adhesives:**

- \* 100% solventless materials
- \* High thermal conductivity
- \* Reworkable at low temperatures (80-100C)
- \* Ability to bond mismatched CTE's

Two component versions of these materials, storable at room temperature, are also available.

**ME 7155:**

Filler: Alumina

Thermal Conductivity: 12

Electrical Conductivity: no

Availability: 1-component, frozen

Suggested Applications: Component attach; substrate attach; other insulating, surface mount thermal management applications.

Storage/Shelf Life: -40C/1 yr.

**ME 7155-AN:**

Filler: Al. Nitride

Thermal Conductivity: 25

Electrical Conductivity: no

Availability: 1-component, frozen

Suggested Applications: Die, component, and substrate attach; other insulating, surface mount thermal management applications.

Storage/Shelf Life: -40C/1 yr.

**ME 7155-CN:**

Filler: Proprietary

Thermal Conductivity: 45

Electrical Conductivity: no

Availability: 1-component, frozen

Suggested Applications: High power, large area die attach, component attach, substrate attach, mismatched CTE's

Storage/Shelf Life: -40C/1 yr.

**ME 7155-CD:**

Filler: Diamond

Thermal Conductivity: 80

Electrical Conductivity: no

Availability: 1-component, frozen

Suggested Applications: High power, large area die attach; component attach, substrate attach, mismatched CTE's.

Storage/Shelf Life: -40C/1 yr.

**A.I. TECHNOLOGY, INC.: "Stress-free" 2-Component Epoxy Paste Adhesives:**

- \* Room temperature curable
  - \* High thermal conductivity
  - \* Reworkable at low temperatures (80-100C)
  - \* Ability to bond mismatched CTE's
- One component versions are also available.

**EG 7655:**

Filler: Alumina  
Thermal Conductivity: 12  
Electrical Conductivity: no  
Availability: 2-component, dual cartridge, meter mix, pre-mixed & frozen  
Suggested Applications: Component attach; substrate attach; other insulating, surface mount thermal management applications.  
Storage/Shelf Life: 25C/1 yr.

**EG 7658:**

Filler: Al. Nitride  
Thermal Conductivity: 25  
Electrical Conductivity: no  
Availability: 2-component, dual cartridge, meter mix, pre-mixed & frozen  
Suggested Applications: Die, component, and substrate attach; other insulating, surface mount thermal management applications.  
Storage/Shelf Life: 25C/1 yr.

**EG 7558-CN:**

Filler: Proprietary  
Thermal Conductivity: 45  
Electrical Conductivity: no  
Availability: 2-component, dual cartridge, meter mix, pre-mixed & frozen  
Suggested Applications: High power; large area die attach; component attach, substrate attach, mismatched CTE's  
Storage/Shelf Life: 25C/1 yr.

**EG 7659:**

Filler: Diamond  
Thermal Conductivity: 80  
Electrical Conductivity: no  
Availability: 2-component, dual cartridge, meter mix, pre-mixed & frozen  
Suggested Applications: High power, large area die attach; component attach, substrate attach, mismatched CTE's  
Storage/Shelf Life: 25C/1 yr.

**A.I. TECHNOLOGY, INC.: Z-POXY Uni-Directionally Conductive  
"Stress-Free" Reworkable Epoxy Adhesives:**

**Ideal for:**

- \* Solder replacement in component attach
- \* Die attach
- \* Tab outer lead bonding
- \* LCD & other displays
- \* Low impedance applications
- \* Connector bonding

**Typical Properties:**

Contact Resistance: <5  
 Recommended Separation between Conductor Pads: mils/mm: 5/0.12  
 X-Y Dielectric Strength (V/0.005"): 300  
 Glass Transition Temp. (C): -25  
 Lap-Shear Strength: 1000 psi 7 N/mm<sup>2</sup>  
 Device Push-off Strength: 1500 psi 12.7 N/mm<sup>2</sup>  
 Tensile Elongation (%): >30  
 Hardness (Shore A): 80  
 Cured Density (gm/cc): 2.3  
 Linear Thermal Expansion Coeff. (ppm/C): 110  
 Maximum Continuous Operation Temp. (C): 150  
 Tensile Modulus (x10<sup>6</sup> psi): 0.01  
 Poisson Ratio: 0.45

**Pastes:**

**ZME 8155:**

Format: 1 Component  
 Thermal Cond.: 12

**ZME 8158:**

Format: 1 Component  
 Thermal Cond.: 25

**ZME 8159:**

Format: 1 Component  
 Thermal Cond.: 80

**ZEG 8055:**

Format: 2 Component  
 Thermal Cond.: 12

**Films:**

**ZSP 8150:**

Format: sheet or custom preform  
 Thermal Cond.: 12

**ZTC 8150 (Tack Film):**

Format: sheet or custom preform  
 Thermal Cond.: 12

**ZSP 8158:**

Format: sheet or custom preform  
 Thermal Cond.: 25

**ZSP 8159:**

Format: sheet or custom preform  
 Thermal Cond.: 80

**ATLAS MINERALS & CHEMICALS, INC.: REZKLAD Concrete Additive FS:**

REZKLAD Concrete Additive FS is an epoxy resin polymer modifier for Portland Cement concrete. REZKLAD Concrete Additive FS provides an easy-to-mix-and-place, structurally sound Portland Cement concrete that cures quickly thus permitting application of various protective barriers with as little as 24 to 48 hours curing time. At temperatures of 70+-5F. (21C.) areas can be exposed to light traffic in 24 hours and to heavy traffic in 48 to 72 hours. REZKLAD Concrete Additive FS includes a two component primer unit, as well as a resin and hardener which is added to Portland Cement concrete. The polymer modified Portland Cement concrete is applied in minimum thickness of 1". It is ideal for use in a multitude of concrete repair applications as well as adjusting elevations.

Compressive strengths approaching 1,000 p.s.i. are attained in 24 hours, 3,000 p.s.i. in 48 hours and more than 5000 p.s.i. after 7 days. Installing contractors experience minimum delay when protective barriers such as monolithic toppings, brick or tile are required to be installed. A variety of Atlas flooring systems are compatible with polymer modified Portland cement concrete that utilizes REZKLAD Concrete Additive FS.

**Surface Preparation:**

Epoxy modified Portland Cement should be applied only to a clean, sound concrete surface. Concrete must be free of loose particles, oils, greases, chemical contaminants and any previously applied paint or floor topping. Commercial chemical cleaning compounds can be used to remove surface contaminants.

**Field Conditions:**

The temperature of the substrate onto which polymer modified Portland Cement concrete is applied should range from 60 to 90F. Do not apply the materials when room temperature is below 60F. or above 90F. Below 60F., proper curing will not take place. Above 90F., working life will be too short.

**Mixing and Installation:**

**Primer:**

Add Primer Hardener to the Resin and mix using an electric drill equipped with a paint stirring blade, Jiffy Mixer or equal.

**Placing the Mixed Material:**

The material is removed from the mixer, placed and finished like conventional Portland Cement concrete.

**BACON INDUSTRIES INC.: Coil Impregnants:**

Unfilled, low viscosity, two-part compounds. Their prime application is the impregnation of electronic components containing a high percentage of fine wires where complete penetration and freedom from voids is important. These compounds are useful also for casting and coating applications where a low viscosity material is required.

Coil Impregnants 2, 3 and 6 are pure epoxy compounds. Coil Impregnant 2 is the preferred material unless the shorter work life or cure cycle of Coil Impregnant 3, or the longer work life of Coil Impregnant 6 is desired. Adhesive FA-14 is a modified epoxy compound having very low viscosity and the best ability to penetrate cracks and crevices.

**CI-2:**

Activator: BA-1

Parts by weight of activator per hundred parts by weight of impregnant: 10.0

Viscosity of activated impregnant at 75F, poise: 5

Surface Tension of activated impregnant at 75F, dyne/cm: 49

Recommended Cure, hr/F: 8/212

Pot Life at 75F, hr: 8

**CI-3:**

Activator: BA-4

Parts by weight of activator per hundred parts by weight of impregnant: 5.0

Viscosity of activated impregnant at 75F, poise: 20

Surface Tension of activated impregnant at 75F, dyne/cm: 43

Recommended Cure, hr/F: 2/200

Pot Life at 75F, hr: 4

**CI-6:**

Activator: BA-45

Parts by weight of activator per hundred parts by weight of impregnant: 23.0

Viscosity of activated impregnant at 75F, poise: 8.5

Surface Tension of activated impregnant at 75F, dyne/cm: 43

Recommended Cure, hr/F: 4/212

Pot Life at 75F, hr: 24

**FA-14:**

Activator: BA-45

Parts by weight of activator per hundred parts by weight of impregnant: 24.5

Viscosity of activated impregnant at 75F, poise: 3

Surface Tension of activated impregnant at 75F, dyne/cm: 37

Recommended Cure, hr/F: 8/160

Pot Life at 75F, hr: 8

**BACON INDUSTRIES INC.: Electrically Conductive Adhesives:**

Bacon Industries offers three silver-filled epoxy adhesives for making electrical connections in applications where the high temperatures necessary to make soldered connections are detrimental to components. Because these materials are filled with silver, they also have relatively high thermal conductivity.

Adhesive LCA-12XM, the most highly filled and least fluid of the three systems, has been specially processed to remove paramagnetic particles; it is used where small amounts of magnetic contamination are detrimental to the operation of sensitive electro-magnetic devices. Comparing the other two systems, Adhesive LCA-24 is an excellent all-around system with better strength above 160F and better long-term conductivity stability. CONDUCTING TWENTY/twenty is the most fluid of the three systems being self-leveling at room temperature and, therefore, the easiest to apply.

**Recommended Mixing and Handling Parameters:**

**LCA-12XM:**

Activator used: BA-17XM  
Amount per hundred parts by weight of adhesive: 1.84  
Work Life at 77F, minutes: 90  
Minimum Shelf Life (3), months: 24  
Recommended Cure, hr/F: 2/200

**LCA-24:**

Activator used: BA-9  
Amount per hundred parts by weight of adhesive: 5.00  
Work Life at 77F, minutes: 60  
Minimum Shelf Life (3), months: 12  
Recommended Cure, hr/F: 2/200

**CONDUCTING TWENTY/twenty:**

Activator used: BA-66B  
Amount per hundred parts by weight of adhesive: 5.50  
Work Life at 77F, minutes: 60  
Minimum Shelf Life (3), months: 3  
Recommended Cure, hr/F: 2/200

**BACON INDUSTRIES INC.: Epoxy Resin Adhesives:****FA Series:**

Unfilled gyro-grade adhesives which are easy to apply. Their coefficient of linear thermal expansion is approximately three times that of the LCA-series adhesives.

**FA-1:**

For bonding and sealing aluminum and other metals.

Activator: BA-4

Parts by weight of activator per hundred of adhesive: 3.20

Pot Life at F: 75

Time: 3 hr

**FA-8:**

Fluid and free-flowing. For bonding and sealing beryllium, aluminum and other metals. The activator is colored making it easy to tell when the adhesive is properly mixed.

Activator: BA-5

Parts by weight of activator per hundred of adhesive: 13.5

Pot Life at F: 75

Time: 90 min

**FA-13:**

Fluid and flexible at elevated temperatures for sealing joints between dissimilar metals difficult or impossible-to-seal with Bacon regular gyro-grade adhesives.

Activator: BA-39

Parts by weight of activator per hundred of adhesive: 26.5

Pot Life at F: 75

Time: 24 hr

**FA-14:**

Exceptionally fluid for bonding fused beryllium oxide, ceramics and other applications requiring a fluid rapidly wetting adhesive.

Activator: BA-45

Parts by weight of activator per hundred of adhesive: 24.5

Pot Life at F: 75

Time: 8 hr

**FFA Series:**

Flexible fluid adhesives which distribute stresses developed in bonded joints because of impact or coefficient of expansion induced stresses. These are not gyro-grade adhesives.

**FFA-5:**

A flexible general purpose adhesive.

Activator: BA-15

Parts by weight of activator per hundred of adhesive: 150

Pot Life at F: 75

Time: 2 hr

**FFA-9:**

A fast-setting Room-Temperature-curing adhesive somewhat more brittle than Adhesive FFA-5.

Activator: BA-11

Parts by weight of activator per hundred of adhesive: 5

Pot Life at F: 75

Time: 15 min



**BACON INDUSTRIES INC.: Epoxy Resin Adhesives (Continued):**

**LCA Series:**

Filled Gyro-Grade adhesives with low coefficients of thermal expansion.

**LCA-1:**

Coefficient of linear thermal expansion of  $17 \times 10^{-6}/F$ . Recommended for bonding and sealing aluminum and other metals.

Activator: BA-4

Parts by weight of activator per hundred of adhesive: 1.07

Pot Life at F: 160

Time: 40 min

**LCA-4:**

Coefficient of expansion of  $15 \times 10^{-6}/F$ . Recommended for bonding and sealing beryllium and other metals. The activator is colored making it easier to determine when the adhesive is properly mixed.

Activator: BA-5

Parts by weight of activator per hundred of adhesive: 4.50

Pot Life at F: 75

Time: 90 min

**LCA-4LV:**

Similar to Adhesive LCA-4 except longer Pot Life and lower viscosity.

Activator: BA-5

Parts by weight of activator per hundred of adhesive: 4.50

Pot Life at F: 75

Time: 240 min

**LCA-9:**

Excellent adhesion to aluminum and beryllium. Has a lower coefficient of expansion than LCA-1 and LCA-4, but is harder to spread and more difficult to machine.

Activator: BA-5

Parts by weight of activator per hundred of adhesive: 8

Pot Life at F: 75

Time: 90 min

**LCA-20:**

Developed for difficult to seal joints.

Activator: BA-40A

Parts by weight of activator per hundred of adhesive: 27.4

Pot Life at F: 160

Time: 25 min

**LCA-21:**

Activator: BA-41

Parts by weight of activator per hundred of adhesive: 34

Pot Life at F: 160

Time: 30 min

**LCA-127:**

Thermally conductive, electrically insulating.

Activator: BA-49

Parts by weight of activator per hundred of adhesive: 3.83

Pot Life at F: 75

Time: 150 min

**BACON INDUSTRIES INC.: Epoxy Resin Finishing Compounds:**

Bacon Industries offers gyro-grade finishing compounds for repairing scratches or other minor flaws in the surface of parts made using Bacon Industries potting compounds.

The finishing compounds are individually packaged in two parts, one containing the resin portion and the other the activator. All finishing compounds use Activator BA-9. Complete mixing and curing instructions are supplied on the container label.

After mixing, the activated compound will remain usable for approximately 45 minutes at Room Temperature. This usable life can be extended up to 8 hours by placing the tightly covered compound in a freezer when not in use. Be sure that the material has warmed to Room Temperature before removing the cover, otherwise product performance may be adversely affected.

Recommended Cure: 2 hours at 212F.

To Make Repairs on any of the Following Bacon Industries' Potting Compounds	Order Finishing Compound No.
P-11, P-14, P-23, P-38, XM Compounds	FC-1 (Clear)
P-19, P-20B Blue	FC-2 (Blue)
P-20, P-20A, P-20C, P-80C, P-80F, P-82C, P-82F	FC-3 (Red)
P-24, P-24C, P-24F	FC-4 (Maroon)
P-83, P-84, P-85, P-86, P-175, P-178	FC-5 (Black)*

\* Not gyro-grade

**BACON INDUSTRIES INC.: High Temperature Adhesive LCA-14:**

Adhesive LCA-14 is a filled epoxy resin adhesive having outstanding resistance to temperature up to 400F and low coefficient of thermal expansion.

**Typical Physical Properties:**

Adhesive: LCA-4LV

Activator: BA-16

Parts by weight of activator required per 100 parts  
by weight of adhesive: 11.2

Pot Life, hours:

at 160F: 8

at 212F: 9

Viscosity at 212F of activated adhesive, poise: 9

Recommended Cure: 8 hours at 212F plus 2 hours at maximum  
use temperature

**High-Temperature Adhesive LCA-48:**

Adhesive LCA-48, an epoxy resin system based on a blending of new and old technologies including Bacon's proprietary ceramic filler, LO-X, has unusually good high temperature resistance, a low coefficient of thermal expansion and outstanding solvent resistance, even if cured at only 212F.

**Recommended Mixing and Handling Parameters:**

Adhesive: LCA-48

Activator: BA-105

Parts by weight of activator per hundred of adhesive: 5.10

Working Life at 77F (25g), minutes: 200

Working Life at 135F (25g), minutes: 75

Pot Life at 212F (25g), minutes: 15

**ALLABOND TWENTY/twenty Adhesive:**

ALLABOND TWENTY/twenty is an epoxy adhesive that has an over twenty minute working life at room temperature and a twenty second cure at 250F. It therefore combines a relatively long pot life and yet a very fast cure.

Also available is TWENTY/twenty NM which is similar but does not contain ingredients that are magnetic.

Also available is TWENTY/twenty Clear which contains no fillers and pigments.

**TWENTY/twenty:**

Resin: TWENTY/twenty

Activator: BA-66B

Parts by weight of activator required per hundred parts  
by weight of resin: 10

Viscosity of mixed adhesive at 77F, poise:  
55

Work Life at 77F, minutes:  
40

Pot Life (Tack-Free Time) at 77F, minutes:  
45

**TWENTY/twenty NM:**

TWENTY/twenty NM

BA-66B

Parts by weight of activator required per hundred parts  
by weight of resin: 10

Viscosity of mixed adhesive at 77F, poise:  
90

Work Life at 77F, minutes:  
25

Pot Life (Tack-Free Time) at 77F, minutes:  
30

**BACON INDUSTRIES INC.: Non-Magnetic Adhesives:**

A number of Bacon Industries gyro grade epoxy adhesives are available in non-magnetic (XM) versions. These adhesives are the same as regular grades except that all of the ingredients used have been specially processed to remove paramagnetic particles. They are used where small amounts of magnetic contamination are detrimental to the operation of sensitive electro-magnetic devices.

The currently available XM grade adhesives are:

**LCA-4XM:**

with Activator BA-5XM or BA-9XM

**LCA-4LVXM:**

with Activator BA-5XM or BA-9XM

**LCA-9CXM:**

with Activator BA-5XM or BA-9XM

**LCA-12XM:**

with Activator BA-17XM or BA-9XM

**LCA-21CXM:**

with Activator BA-41CXM

Activator BA-5XM is the same as Activator BA-5, except that it contains no color. Activator BA-9XM may be specified in place of Activator BA-5XM; it contains neither the color nor suspending agent included in Activator BA-5.

**BACON INDUSTRIES INC.: Non-Magnetic Potting Compounds:**

These potting compounds are the same as the regular gyro grades except that the fillers and resins used have been specially processed to remove para-magnetic particles. They are used where magnetic contamination is detrimental to sophisticated sensitive electromagnetic assemblies.

**Potting Compound: P-11XM:**

Compound: 1119XM  
Activator: BA-1XM

**Potting Compound: P-14CXM:**

Compound: 1420CXM  
Activator: BA-1XM

**Potting Compound: P-14FXM:**

Compound: 1420FXM  
Activator: BA-1XM

**Potting Compound: P-19XM:**

Compound: 1119XM  
Activator: BA-2AXM

**Potting Compound: P-20CXM:**

Compound: 1420CXM  
Activator: BA-3AXM

**Potting Compound: P-20FXM:**

Compound: 1420FXM  
Activator: BA-3AXM

**Potting Compound: P-24CXM:**

Compound: 24CXM  
Activator: BA-2AXM

**Potting Compound: P-24FXM:**

Compound: 24FXM  
Activator: BA-2AXM

**Potting Compound: P-82CXM:**

Compound: 24CXM  
Activator: BA-45XM

**Potting Compound: P-82FXM:**

Compound: 24FXM  
Activator: BA-45XM

**BACON INDUSTRIES INC.: Potting Compounds:**

**Highly-Filled Gyro-Grade/Low Coefficient of Expansion:**

**P-11:**

Compound: 1119  
Activator: BA-1  
Activator Required, PHC: 3.20  
Potting Temperature, F: 212  
Viscosity at Potting Temp, Poise: 25  
Pot Life:  
    Temperature, F: 212  
    Minutes: 90  
Recommended Cure:  
    In Mold, Hours: 4  
        Temperature, F: 212  
    Plus in Oven, Hours: 16  
        Temperature, F: 212  
Chief Advantages: Excellent machinability, general purpose

**P-14:**

Compound: 1420  
Activator: BA-1  
Activator Required, PHC: 3.12  
Potting Temperature, F: 212  
Viscosity at Potting Temp, Poise: 25  
Pot Life:  
    Temperature, F: 212  
    Minutes: 60  
Recommended Cure:  
    In Mold, Hours: 4  
        Temperature, F: 212  
    Plus in Oven, Hours: 16  
        Temperature, F: 212  
Chief Advantages: Low coefficient high tensile strength

**P-19:**

Compound: 1119  
Activator: BA-2A  
Activator Required, PHC: 35.2  
Potting Temperature, F: 212  
Viscosity at Potting Temp, Poise: 25  
Pot Life:  
    Temperature, F: 212  
    Minutes: 50  
Recommended Cure:  
    In Mold, Hours: 8  
        Temperature, F: 212  
    Plus in Oven, Hours: 40  
        Temperature, F: 300  
Chief Advantages: Excellent machinability, low creep

**BACON INDUSTRIES INC.: Potting Compounds (Continued):**

**Highly-Filled Gyro-Grade/Low Coefficient of Expansion  
(Continued):**

**P-20:**

Compound: 1420  
Activator: BA-3A  
Activator Required, PHC: 32.0  
Potting Temperature, F: 212  
Viscosity at Potting Temp, Poise: 25  
Pot Life:  
    Temperature, F: 212  
    Minutes: 25  
Recommended Cure:  
    In Mold, Hours: 8  
        Temperature, F: 212  
    Plus in Oven, Hours: 16  
        Temperature, F: 300  
Chief Advantages: High tensile low creep

**P-24:**

Compound: 24  
Activator: BA-2A  
Activator Required, PHC: 26.3  
Potting Temperature, F: 250  
Viscosity at Potting Temp, Poise: 35  
Pot Life:  
    Temperature, F: 250  
    Minutes: 20  
Recommended Cure:  
    In Mold, Hours: 8  
        Temperature, F: 212  
    Plus in Oven, Hours: 16  
        Temperature, F: 300  
Chief Advantages: Low coefficient high tensile, low creep

**P-38:**

Compound: 38  
Activator: BA-1  
Activator Required, PHC: 2.12  
Potting Temperature, F: 300  
Viscosity at Potting Temp, Poise: 9  
Pot Life:  
    Temperature, F: 300  
    Minutes: 60  
Recommended Cure:  
    In Mold, Hours: 4  
        Temperature, F: 212  
    Plus in Oven, Hours: 16  
        Temperature, F: 212  
Chief Advantages: Least tendency to crack, lowest coefficient.

**BACON INDUSTRIES INC.: Potting Compounds (Continued):****Highly-Filled Gyro-Grade Low Coefficient of Expansion  
(Continued):****P-70:**

Compound: 24  
 Activator: BA-1  
 Activator Required, PHC: 2.5  
 Potting Temperature, F: 250  
 Viscosity at Potting Temp, Poise: 40  
 Pot Life:  
   Temperature, F: 212  
   Minutes: 60  
 Recommended Cure:  
   In Mold, Hours: 4  
     Temperature, F: 212  
   Plus in Oven, Hours: 20  
     Temperature, F: 212  
 Chief Advantages: Properties between P-41 & P-81.

**P-82C:**

Compound: 24C  
 Activator: BA-45  
 Activator Required, PHC: 6.0  
 Potting Temperature, F: 160  
 Viscosity at Potting Temp, Poise: 20  
 Pot Life:  
   Temperature, F: 160  
   Minutes: 45  
 Recommended Cure:  
   In Mold, Hours: 24  
     Temperature, F: 135  
   Plus in Oven, Hours: 24+24  
     Temperature, F: 160 200  
 Chief Advantages: Easier to process than P-28 and P-81.  
                   Low stress.

**Light Weight:****P-175:**

Compound: 175  
 Activator: BA-157  
 Activator Required, PHC: 16.5  
 Potting Temperature, F: 160  
 Viscosity at Potting Temp, Poise: 35  
 Pot Life:  
   Temperature, F: 160  
   Minutes: 45  
 Recommended Cure:  
   In Mold, Hours: 8  
     Temperature, F: 160  
   Plus in Oven, Hours: 16  
     Temperature, F: 250  
 Chief Advantages: Low density non-settling and self-extinguishing.



**BACON INDUSTRIES INC.: Potting Compounds (Continued):**

**Thermally Conductive:**

**P-56:**

Compound: 56  
Activator: BA-22  
Activator Required, PHC: 71  
Potting Temperature, F: 160  
Viscosity at Potting Temp, Poise: 16  
Pot Life:  
    Temperature, F: 160  
    Minutes: 50  
Recommended Cure:  
    In Mold, Hours: 16  
    Temperature, F: 160  
Chief Advantages: Settles but maximum thermal conductivity for settled portion.

**P-56A:**

Compound: 56  
Activator: BA-22A  
Activator Required, PHC: 71  
Potting Temperature, F: 160  
Viscosity at Potting Temp, Poise: 13  
Pot Life:  
    Temperature, F: 160  
    Minutes: 40  
Recommended Cure:  
    In Mold, Hours: 3  
    Temperature, F: 160  
    Plus in Oven, Hours: 5  
    Temperature, F: 160  
Chief Advantages: Like P-56 but most non-settling

**P-178:**

Compound: 178  
Activator: BA-47  
Activator Required, PHC: 6.0  
Potting Temperature, F: 160  
Viscosity at Potting Temp, Poise: 14  
Pot Life:  
    Temperature, F: 160  
    Minutes: 100  
Recommended Cure:  
    In Mold, Hours: 8  
    Temperature, F: 160  
    Plus in Oven, Hours: 8  
    Temperature, F: 160  
Chief Advantages: Non-Settling

**BACON INDUSTRIES INC.: Potting Compounds (Continued):****Clear General Purpose Potting Compound P-51:**

Potting Compound P-51 is a general purpose unfilled modified epoxy potting compound that will cure at room temperature to a clear slightly flexible material. It is suitable for the encapsulation of electronic components to be used at temperatures up to 250F and other applications requiring a transparent resilient compound.

**Recommended Mixing and Handling Parameters:**

Resin Compound: 51

Activator: BA-21

Activator Required, parts by weight/hundred of compound: 19.5

Viscosity of Activator Compound at 75F, poise: 4

Working Life at 75F, hours: 2

Recommended Cure: 48 hr at 75F

Alternate Cure: 4 hr at 140F

**Instrument Grade Potting Compounds P-80C and P-80F:**

Potting Compounds P-80C and P-80F are highly-filled high performance epoxy systems featuring relatively low viscosity along with very low coefficient of thermal expansion, high strength, high modulus of elasticity and low shrinkage upon cure. These materials are useful in applications requiring high dimensional stability to temperatures over 200F as well as low outgassing in applications such as gyro motor stators, electromagnetic devices and precision electronic devices operating in extreme environments. Both systems have outstanding thermal shock resistance.

**P-80C:**

Resin Compound: 24C

Activator: BA-82

Activator Required, phr: 6.0

Mixing Temperature, F: 160

Viscosity of Activated Compound at 160F, poise: 15

Work Life at 160F (300g), min.: 50

Tack Free Time at 160F (300g), minutes: 60

**P-80F:**

Resin Compound: 24F

Activator: BA-42

Activator Required, phr: 6.0

Mixing Temperature, F: 160

Viscosity of Activated Compound at 160F, poise: 12

Work Life at 160F (300g), min.: 60

Tack Free Time at 160F (300g), minutes: 70

**BACON INDUSTRIES INC.: Potting Compounds (Continued):**

**Instrument Grade Potting Compounds P-82C and P-82F:**

Potting Compounds P-82C and P-82F are highly-filled high performance epoxy systems featuring relatively low viscosity along with practically no shrinkage stresses upon cure, low coefficient of thermal expansion, high strength and high modulus of elasticity. These materials are useful in applications requiring high dimensional stability to temperatures over 200F and for low outgassing in applications such as gyro motor stators, electromagnetic devices and precision electronic devices operating in extreme environments. Both systems have outstanding thermal shock resistance.

**P-82C:**

Resin Compound: 24C

Activator: BA-45

Activator Required, parts by weight per hundred of compound: 6.0

Viscosity of Activated Compound,

poise at 135F: 49

at 160F: 15

Work Life (300g), minutes:

at 135F: 65

at 160F: 55

Tack Free Time (300g), minutes:

at 135F: 85

at 160F: 60

**P-82F:**

Resin Compound: 24F

Activator: BA-45

Activator Required, parts by weight per hundred of compound: 6.0

Viscosity of Activated Compound,

poise at 135F: 47

at 160F: 9

Work Life (300g), minutes:

at 135F: 80

at 160F: 55

Tack Free Time (300g), minutes:

at 135F: 100

at 160F: 60

**BACON INDUSTRIES INC.: Potting Compounds (Continued):****General Purpose Potting Compound C-84/BA-63:**

Compound 84, when used with Activator BA-63, yields an easy-to-handle-at-room-temperature epoxy potting compound that after curing has good properties at moderate temperatures. It is a reasonably priced system that is recommended for potting and casting applications of up to one pound mass. It has inherently a high degree of resistance to flame propagation without the use of noxious additives.

**Recommended Mixing and Handling Parameters:**

Resin Compound: 84

Activator: BA-63

Activator Required, parts by weight per hundred of compound: 7.3

Work Life at 77F, minutes:

300 grams: 30

100 grams: 120

Viscosity of Compound at 77F, poise: 600

Viscosity of Activated Compound at 77F, poise: 60

Recommended Cure, hr/F: 3/77 + 2/250

Alternate Cure, hr/F: 24/77

**Low Cost Potting Compound P-85:**

Potting Compound P-85 is a highly filled heat-curing epoxy system designed for casting applications requiring ease of handling, long work life and short cure time. It has a low coefficient of thermal expansion, high Heat Distortion Temperature and good electrical properties.

Potting Compound P-85 is useful in electronic applications involving high voltages.

**Recommended Mixing and Handling Parameters:**

Resin Compound: C-85

Activator: BA-60

Activator Required, parts by weight per hundred of compound: 8.0

Mixing and Potting Temperature, F: 180

Viscosity of activated compound at 180F, p: 22.5

Working Life at 180F, minutes: 45

Pot Life (tack-free time) at 180F, minutes: 90

Recommended Cure, hr/F: 4/180

**BACON INDUSTRIES INC.: Potting Compounds (Continued):**

**Microcircuit Grade Potting Compound P-86:**

Potting Compound P-86 is a highly filled heat-curing system designed for use in electronic and microcircuit packaging. It is exceptionally fluid, can be handled easily at room temperature, cures in a relatively short time and has excellent electrical properties at high temperatures.

Because Potting Compound P-86 uses a liquid anhydride curing agent, it usually can be used over semiconductor junctions without causing poisoning failure. The costly step of protecting chips with silicone rubber barrier coatings can be eliminated in many applications.

**Recommended Mixing and Handling Parameters:**

Resin Compound: C-85

Activator: BA-62

Activator Required, parts by weight  
per hundred of compound: 27.0

Viscosity of Activated Compound, poise:

at 75F: 40

at 180F: 3.0

Working Life, hours:

at 75F: >16

at 180F: 1

Work Life at 180F, minutes: 80

Pot Life (tack-free time) at 180F, minutes: 100

Recommended Cure, hr/F: 4/180

Alternate Cure, hr/F: 2/185 plus 3/300

**BACON INDUSTRIES INC.: Rapid Wetting Fluid Adhesive FA-14:**

Adhesive FA-14 is a very low viscosity unfilled epoxy resin adhesive used for bonding components made from fused beryllium oxide and for other bonding and impregnating applications requiring a good wetting compound. Adhesive FA-14 is suitable for gyro use in contact with poly(bromotrifluoroethylene) oil.

**Recommended Mixing and Handling Parameters:**

Adhesive: FA-14

Activator: BA-45

Parts by weight of activator required per hundred of adhesive: 24.5

Work Life at Room Temperature, hours: 8

Work Life at 160F, minutes: 50

Viscosity of mixed adhesive at Room Temperature, cp: 230

Surface Tension at Room Temperature, dyne-cm: 24.9

Recommended cure: 8 hr at 160F

**High-Temperature Adhesive FA-48:**

Adhesive FA-48, an epoxy resin system based on a blending of new and old technologies, has unusually good high temperature resistance, even if cured at only 212F.

This is a clear unfilled system and may be considered as a potential replacement for Adhesive FA-8 where superior performance at temperatures above 175F is required. A filled low coefficient of thermal expansion version of this system, Adhesive LCA-48, is available.

The curing agent, Activator BA-109, is a clear liquid amine with reduced sensitivity to moisture and carbon dioxide. It does not contain methylene dianiline (MDA) or phenylene diamines. Since it is not based on solid anhydrides, the potential for mixing and blending errors is greatly reduced.

**Recommended Mixing and Handling Parameters:**

Adhesive: FA-48

Activator: BA-109

Parts by weight of activator per hundred of adhesive: 13.42

Working Life at 77F (25g), minutes: 180

Working Life at 135F (25g), minutes: 40

Pot Life at 212F (25g), minutes: 7

**BACON INDUSTRIES INC.: Thermally Conductive Adhesive LCA-127:**

Adhesive LCA-127 is a thermally conductive electrically insulating epoxy adhesive. It has a paste consistency and will not run from vertical surfaces.

**Recommended Mixing and Handling Parameters:**

Adhesive: LCA-127  
Activator: BA-49  
Parts by weight of activator required per hundred parts by weight of adhesive: 3.83  
Consistency: Thixotropic paste (>4000 poise)  
Work Life at 77F, minutes: 150  
Tack-free time at 77F, hours: 7  
Recommended Cure, minutes/F: 30/200

**Flexible Adhesive JR-228 for Plastics:**

Adhesive JR-228 and its analog, JR-228-1, are semi-flexible modified epoxy systems designed to have superior bonds to most thermoplastics, elastomers, glasses and metals. These systems have excellent adhesion to plastics such as polycarbonates (Lexan), polyesters (Mylar), nylon, ABS, PVC and acrylics. In most instances, with properly prepared surfaces, the bond is stronger than the plastic substrate.

These systems are two-component copolymers, one of which is coreacted with a high molecular weight epoxide. All of the systems have high tack so that parts may be held together easily prior to curing. This adhesive is stable to temperatures in excess of 150F.

**Recommended Mixing and Handling Parameters:**

**JR-228:**

Adhesive: JR-228A  
Activator: JR-228-HN  
Parts by weight of activator required per hundred parts by weight of adhesive: 120  
Viscosity at 77F, cp: 80,000  
Work Life at 77F, minutes: 30  
Tack-Free time at 77F, hours: 12  
Recommended Cure, hr/F: 2/200  
Alternate Cures, hr/F: 5/150  
days/77F: 14

**JR-228-1:**

Adhesive: JR-228-1A  
Activator: JR-228-1B  
Parts by weight of activator required per hundred parts by weight of adhesive: 120  
Viscosity at 77F, cp: 50,000  
Work Life at 77F, minutes: 40  
Tack-Free time at 77F, hours: 12  
Recommended Cure, hr/F: 3/200  
Alternate Cures, hr/F: 5/160  
days/77F: 14

**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds:****101:**

Color: Gray  
Specific Gravity: 2.13  
Mixing Ratio (By Wt.): 2R:1C  
Pot Life 100 Gms. @ 23C.: 50 minutes  
Self Exting.: No  
Recommended Cure Cycle: 30 Minutes @ 60C or Overnight @ R.T.  
Mixed Viscosity in Cps: 100,000 @ 23C/48,000 @ 35C  
Highly filled, thermally conductive, room cure potting compound

**112:**

Color: Brown  
Specific Gravity: 1.75  
Mixing Ratio (By Wt.): 1R:1C  
Pot Life 100 Gms. @ 23C: 2 Hours  
Self Exting.: No  
Recommended Cure Cycle: 20 minutes @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: Thixo. Paste  
Highly filled, thixotropic, room cure adhesive

**118:**

Color: Clear Amber  
Specific Gravity: 1.08  
Mixing Ratio (By Wt.): 2R:1C  
Pot Life 100 Gms. @ 23C: 2 Hours  
Self Exting.: No  
Recommended Cure Cycle: 15 minutes @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: 1,400 @ 23C  
Unfilled, flexible, room cure, potting compound

**122:**

Color: Brown  
Specific Gravity: 1.48  
Mixing Ratio (By Wt.): 1R:2C  
Pot Life 100 Gms. @ 23C: 2-3 Days  
Self Exting.: Yes  
Recommended Cure Cycle: 4 Hours @ 100C or 2 Hours @ 120C  
Mixed Viscosity in Cps: 30,000 @ 23C  
Filled, flexible, oven cure, flame retardant potting compound

**148:**

Color: Rust  
Specific Gravity: 1.45  
Mixing Ratio (By Wt.): 1R:1C  
Pot Life 100 Gms. @ 23C: 2 Hours  
Self Exting.: No  
Recommended Cure Cycle: Overnight @ R.T.  
Mixed Viscosity in Cps: Thixo. Paste  
Filled, thixotropic room cure adhesive



**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds  
(Continued):**

152:

Color: Black  
Specific Gravity: 1.53  
Mixing Ratio (By Wt.): 100R:8C  
Pot Life 100 Gms. @ 23C: 20-40 Minutes  
Self Exting.: Yes  
Recommended Cure Cycle: 1 Hour @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: 3,300 @ 23C  
Filled, room cure, flame retardant potting compound

165:

Color: Cream  
Specific Gravity: 1.08  
Mixing Ratio (By Wt.): 7R:3C  
Pot Life 100 Gms. @ 23C: 2 Hours  
Self Exting.: No  
Recommended Cure Cycle: 1 Hour @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: Thixo. Paste  
Unfilled, thixotropic, room cure adhesive

168:

Color: Black  
Specific Gravity: 1.69  
Mixing Ratio (By Wt.): 1R:1C  
Pot Life 100 Gms. @ 23C: 30-40 Minutes  
Self Exting.: No  
Recommended Cure Cycle: 2 Hours @ 80C or 16 Hours @ R.T.  
Mixed Viscosity in Cps: 5,000-6,000 @ 23C  
Highly filled, extended, inexpensive potting compound

170:

Color: Black  
Specific Gravity: 1.53  
Mixing Ratio (By Wt.): 10R:1C  
Pot Life 100 Gms. @ 23C: 15 Minutes  
Self Exting.: No  
Recommended Cure Cycle: 16 Hours @ R.T.  
Mixed Viscosity in Cps: 5,000-6,000 @ 23C  
Filled, fast room cure potting compound

171:

Color: Black  
Specific Gravity: 1.40  
Mixing Ratio (By Wt.): 100R:30C  
Pot Life 100 Gms. @ 23C: 10-15 Minutes  
Self. Exting.: No  
Recommended Cure Cycle: 16 Hours @ R.T.  
Mixed Viscosity in Cps: 6,000-8,000 @ 23C  
Filled, fast room cure potting compound

**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds  
(Continued):**

173:

Color: Water White  
Specific Gravity: 1.07  
Mixing Ratio (By Wt.): 100R:35C  
Pot Life 100 Gms. @ 23C.: 2 Hours  
Self Extng.: No  
Recommended Cure Cycle: 16 Hours @ R.T.  
Mixed Viscosity in Cps: 500-700 @ 23C  
Clear, low viscosity, room cure coating or potting compound

411:

Color: Black  
Specific Gravity: 1.40  
Mixing Ratio (By Wt.): 4R:1C  
Pot Life 100 Gms. @ 23C.: 2 Hours  
Self Extng.: No  
Recommended Cure Cycle: 1 Hour @ 70C or Overnight @ R.T.  
Mixed Viscosity in Cps: 2,800 @ 23C  
Filled, low viscosity, room cure potting compound

440:

Color: Red  
Specific Gravity: 1.45  
Mixing Ratio (By Wt.): 4R:1C  
Pot Life 100 Gms. @ 23C.: 2 Hours  
Self Extng.: No  
Recommended Cure Cycle: Overnight @ R.T.  
Mixed Viscosity in Cps: 5,000 @ 23C  
Filled, room cure potting compound

445:

Color: Black  
Specific Gravity: 1.57  
Mixing Ratio (By Wt.): 100R:6C  
Pot Life 100 Gms. @ 23C.: 30-40 Minutes  
Self Extng.: Yes  
Recommended Cure Cycle: 1-3 Hours @ 60C-85C or  
16-24 Hours @ 23C  
Mixed Viscosity in Cps: 3,200 @ 23C  
Filled, room cure, flame retardant potting compound

470:

Color: Amber  
Specific Gravity: 1.07  
Mixing Ratio (By Wt.): 53R:47C  
Pot Life 100 Gms. @ 23C.: 3-4 Days  
Self Extng.: No  
Recommended Cure Cycle: 1-4 Hours @ 115C-135C  
Mixed Viscosity in Cps: 3,000 @ 23C  
Unfilled, flexible, oven cure potting compound

**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds  
(Continued):**

471:

Color: Black  
Specific Gravity: 1.40  
Mixing Ratio (By Wt.): 100R:13C  
Pot Life 100 Gms. @ 23C.: 1 Hour  
Self Extng.: No  
Recommended Cure Cycle: 1 Hour @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: 1,500 @ 23C  
Filled, low viscosity, room cure potting compound

472:

Color: Gray  
Specific Gravity: 1.50  
Mixing Ratio (By Wt.): 52.5R:47.5C  
Pot Life 100 Gms. @ 23C.: 90 Minutes  
Self Extng.: No  
Recommended Cure Cycle: 20 Minutes @ 80C or Overnight @ R.T.  
Mixed Viscosity in Cps: Thixo. Paste  
Filled, thioxotropic, room cure adhesive

473:

Color: Amber  
Specific Gravity: 1.05  
Mixing Ratio (By Wt.): 2R:1C  
Pot Life 100 Gms. @ 23C.: 40 Minutes  
Self Extng.: No  
Recommended Cure Cycle: Overnight @ R.T.  
Mixed Viscosity in Cps: Thixotropic Fluid  
Unfilled, slightly thixotropic, room cure adhesive or potting compound

474:

Color: Black  
Specific Gravity: 1.40  
Mixing Ratio (By Wt.): 100R:44C  
Pot Life 100 Gms. @ 23C.: 8 Hours  
Self Extng.: No  
Recommended Cure Cycle: 2 Hours @ 105C  
Mixed Viscosity in Cps: 1,300-2,300 @ 23C  
Filled, oven cure, coil impregnation compound

475:

Color: Water White  
Specific Gravity: 1.10  
Mixing Ratio (By Wt.): 55R:45C  
Pot Life 100 Gms. @ 23C.: 20-30 Minutes  
Self Extng.: No  
Recommended Cure Cycle: 30-90 Min. @ 50C-85C or  
2-6 Hours @ R.T.  
Mixed Viscosity in Cps: 2,000-7,000 @ 23C  
Clear, medium viscosity, room cure coating or potting compound

**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds  
(Continued):**

476:

Color: Clear Yellow  
Specific Gravity: 1.16  
Mixing Ratio (By Wt.): One Component  
Self Exting.: No  
Recommended Cure Cycle: 2-20 Sec., Max.  
.050 in. film thickness  
Mixed Viscosity in Cps: 550 @ 23C  
Low viscosity, ultraviolet cure conformal coating

477:

Color: Black  
Specific Gravity: 1.55  
Mixing Ratio (By Wt.): 100R:3C  
Pot Life 100 Gms. @ 23C.: 4-8 Hours  
Self Exting.: No  
Recommended Cure Cycle: 5-15 Seconds @ 125C  
Mixed Viscosity in Cps: 50,000-150,000 @ 23C  
Filled, fast oven cure, adhesive or potting compound

478:

Color: Black  
Specific Gravity: 1.85  
Mixing Ratio (By Wt.): 54R:46C  
Pot Life 100 Gms. @ 23C.: 8 Hours  
Self Exting.: Yes  
Recommended Cure Cycle: 2-4 Hours @ 100C-110C  
Mixed Viscosity in Cps: 1,000-2,500 @ 90C  
Highly filled, optimal electrical, oven cure, flame  
retardant, coil impregnation compound

479:

Color: Black  
Specific Gravity: 1.10  
Mixing Ratio (By Wt.): 57.5R:42.5C  
Pot Life 100 Gms. @ 23C.: 12 Hours  
Self Exting.: No  
Recommended Cure Cycle: 4-16 Hours @ 100C-135C  
Mixed Viscosity in Cps: 1,300 @ 23C  
Unfilled, low viscosity, oven cure potting compound

480:

Color: Light Tan  
Specific Gravity: 1.45  
Mixing Ratio (By Wt.): 4R:1C  
Pot Life 100 Gms. @ 23C.: 60 Minutes  
Self Exting.: No  
Recommended Cure Cycle: 1 Hour @ 70C or Overnight @ 23C  
Mixed Viscosity in Cps: 3,000-5,000 @ 23C  
Filled, room cure, telephone terminal block potting compound

**BIWAX CORP.: BIWAX Thermosetting Epoxy Resin Compounds  
(Continued):**

**79.1989:**

Color: Black  
Specific Gravity: 1.82  
Mixing Ratio (By Wt.): 100R:85C  
Pot Life 100 Gms. @ 23C: 2-3 Days  
Self Exting.: UL 94HB  
Recommended Cure Cycle: 2 Hours @ 105C  
Mixed Viscosity in Cps: 400-700 @ 90C  
Filled, medium viscosity, oven cure, high voltage coil  
impregnation compound

**79.2221:**

Color: Tan  
Specific Gravity: 1.57  
Mixing Ratio (By Wt.): 100R:6C  
Pot Life 100 Gms. @ 23C: 30-40 Minutes  
Self Exting.: UL 94V-0  
Recommended Cure Cycle: 16-24 Hours @ 23C or  
1-3 Hours @ 60-85C  
Mixed Viscosity in Cps: 3,200 @ 23C  
Filled, medium viscosity, room cure potting compound

**CASTALL, INC.: Epoxies: Electronic Insulating Applications:****CASTALL E100 Series:**

Unmodified medium viscosity epoxy resins used for making high strength laminates and transparent castings. CASTALL E105 and E106 are low viscosity versions of E100.

**CASTALL E124A&B and E126A&B:**

Low and medium viscosity semi-flexible two-part systems that lend themselves to coatings as well as potting applications. E124 is a clear unfilled material while E126 is the filled version of E124.

**CASTALL E169A&B:**

A two-part potting compound with excellent electrical properties at elevated temperatures. It is particularly resistant to thermal and mechanical shock and to conditions of high moisture.

**CASTALL E250 Series:**

High viscosity potting resins with low shrinkage and thermal expansion meeting MIL-I-16923 types C and D. CASTALL E251 is a low viscosity version of E250.

**CASTALL E300 Series:**

High viscosity potting resins offering high thermal conductivity and low shrinkage during cure. Also have a very low coefficient of thermal expansion. CASTALL E301, E301AD, E301FR are lower viscosity versions and a flame retardant version of E300. CASTALL E301KT has the highest thermal conductivity rating and E1520 and E1530 are good adhesives as well as excellent thermal conductors. E1530FR is similar to E301FR but lower in viscosity.

**CASTALL E340 Series:**

Medium viscosity compound that offers excellent adhesion, high electrical insulation and high thermal conductivity. CASTALL E341FR is a flame retardant version of E341. CASTALL E344FR A&B is a special flame retardant, thermally conductive, difficult to remove material, that has been found useful in protecting proprietary circuits or designs from mechanical or x-ray intrusions.

**CASTALL E400 Series:**

Medium viscosity, ready machineable, casting resin. Properties are similar to E251. CASTALL E401 and E403 are low viscosity versions while E409 is a higher viscosity version offering high impact resistance and low shrinkage. CASTALL E414FR A&B and E415FR A&B are low viscosity, easy to use, flame retardant systems.

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**CASTALL E435A&B Series:**

Low viscosity two-part semi-flexible epoxy systems, E435A&B has a long pot life and CASTALL E441 and E453 are higher viscosity versions of E435 and CASTALL E437 is a clear version of E435.

**CASTALL E463 Series:**

Medium viscosity electrical embedding compound approximately half the weight of conventional filled resins. E464A&B, E465 and E466FR A&B are variations of E463. All have a very low dielectric constant.

**CASTALL E480A&B Series:**

A two-part, semi-flexible unfilled low viscosity epoxy with excellent high temperature properties. CASTALL E482 and E483 are filled versions of E480 and have higher viscosities with E482 being a paste-like material.

**CASTALL E490A&B:**

Medium viscosity, filled, two-component casting epoxy compound. E490 is especially suited for very large castings and high voltage transformers.

**CASTALL E491A&B Series:**

A two-component, low viscosity heat curing unfilled epoxy compound designed to be used with low cost fillers to produce an epoxy/sand system. CASTALL E493 is a fast curing version of E491.

**CASTALL E492FR A&B:**

Medium viscosity, two-component semi-rigid flame retardant compound. E492FR has low shrinkage and bonds well to plastic and metal cases. E492FR also has excellent thermal shock resistance and high thermal conductivity.

**CASTALL E4866A&B, E4876A&B and E4877A&B:**

Two-part, electrically conductive, silver filled epoxy systems. These materials are thixotropic pastes with excellent adhesion to metal, glass, ceramic and various plastics. E4866A&B is an easy to use conductive epoxy system with a mix ratio of 1 to 1. E4876A&B is ideal for cold soldering of heat sensitive materials and E4877A&B is specifically designed for chip bonding applications especially where high temperature characteristics are required.

The following products are UL Yellow Card approved:

E-301FR	94VO	E-341FR	94VO
E-344FR	94VO	E-414FR	94VO
E-415FR	94VO	E-1530FR	94VO
E-492FR	94VO		

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):****General Purpose:****E100:**

Medium viscosity, unfilled  
Amber  
Specific Gravity @ 25C: 1.16  
Viscosity @ 25C (cps): 12200  
Shore Hardness: D89  
Temperature Range C: -55 to 145

**E105:**

Low viscosity, unfilled  
Amber  
Specific Gravity @ 25C: 1.13  
Viscosity @ 25C (cps): 600  
Shore Hardness: D87  
Temperature Range C: -55 to 120

**E106:**

Low viscosity, unfilled  
Amber  
Specific Gravity @ 25C: 1.13  
Viscosity @ 25C (cps): 600  
Shore Hardness: D87  
Temperature Range C: -55 to 120

**E124A&B:**

Low viscosity, unfilled two-part system  
Amber  
Specific Gravity @ 25C: 1.06  
Viscosity @ 25C (cps): 7100  
Shore Hardness: D73  
Temperature Range C: -55 to 135

**E126A&B:**

Medium viscosity, filled two-part system  
Beige  
Specific Gravity @ 25C: 1.40  
Viscosity @ 25C (cps): 25000  
Shore Hardness: D73  
Temperature Range C: -55 to 135

**E401:**

Low viscosity, filled  
Black  
Specific Gravity @ 25C: 1.55  
Viscosity @ 25C (cps): 3200  
Shore Hardness: D87  
Temperature Range C: -55 to 155



**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**General Purpose (Continued):**

**E403:**

Low viscosity, filled  
Black  
Specific Gravity @ 25C: 1.55  
Viscosity @ 25C (cps): 6000  
Shore Hardness: D85  
Temperature Range C: -55 to 155

**E409:**

Medium viscosity, filled  
Grey  
Specific Gravity @ 25C: 1.75  
Viscosity @ 25C (cps): 40000  
Shore Hardness: D91  
Temperature Range C: -65 to 150

**Military Grade:**

**E250:**

High viscosity, filled  
Black  
Specific Gravity @ 25C: 1.55  
Viscosity @ 25C (cps): 200000  
Shore Hardness: D88  
Temperature Range C: -65 to 155

**E251:**

Medium viscosity, filled  
Black  
Specific Gravity @ 25C: 1.45  
Viscosity @ 25C (cps): 35000  
Shore Hardness: D88  
Temperature Range C: -65 to 150

**E480A&B:**

Low viscosity, unfilled  
Amber  
Specific Gravity @ 25C: 1.08  
Viscosity @ 25C (cps): 4200  
Shore Hardness: D65  
Temperature Range C: -65 to 155

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):****Military Grade (Continued):****E482A&B:**

Paste, filled  
Cream  
Specific Gravity @ 25C: 1.50  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D65  
Temperature Range C: -65 to 155

**E483A&B:**

Medium viscosity, filled  
Cream  
Specific Gravity @ 25C: 1.45  
Viscosity @ 25C (cps): 30000  
Shore Hardness: D65  
Temperature Range C: -65 to 155

**Thermally Conductive:****E300:**

High viscosity, filled  
Black  
Specific Gravity @ 25C: 2.25  
Viscosity @ 25C (cps): 75000  
Shore Hardness: D93  
Temperature Range C: -65 to 155

**E301:**

High viscosity, filled  
Black  
Specific Gravity @ 25C: 2.05  
Viscosity @ 25C (cps): 80000  
Shore Hardness: D93  
Temperature Range C: -65 to 155

**E301AD:**

Low viscosity, filled  
Black  
Specific Gravity @ 25C: 2.00  
Viscosity @ 25C (cps): 10000  
Shore Hardness: D93  
Temperature Range C: -65 to 155

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**Thermally Conductive (Continued):**

**E301KT:**

Paste, filled, highest thermal conductivity  
Black  
Specific Gravity @ 25C: 2.80  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D95  
Temperature Range C: -65 to 155

**E341:**

Medium viscosity, filled  
Black  
Specific Gravity @ 25C: 1.90  
Viscosity @ 25C (cps): 13000  
Shore Hardness: D89  
Temperature Range C: -65 to 155

**E1520:**

Paste, filled, adhesive  
Black  
Specific Gravity @ 25C: 2.35  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D93  
Temperature Range C: -65 to 155

**E1530:**

Medium viscosity, filled  
Black  
Specific Gravity @ 25C: 2.25  
Viscosity @ 25C (cps): 70000  
Shore Hardness: D93  
Temperature Range C: -65 to 150

**Flame Retardant:**

**E301FR:**

High viscosity, filled  
Black  
Specific Gravity @ 25C: 2.00  
Viscosity @ 25C (cps): 100000  
Shore Hardness: D91  
Temperature Range C: -65 to 155

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):****Flame Retardant (Continued):****E341FR:**

Low viscosity, filled  
Black  
Specific Gravity @ 25C: 1.61  
Viscosity @ 25C (cps): 15000  
Shore Hardness: D91  
Temperature Range C: -65 to 155

**E344FR A&B:**

Medium viscosity, filled  
Green  
Specific Gravity @ 25C: 1.94  
Viscosity @ 25C (cps): 30000  
Shore Hardness: D90  
Temperature Range C: -65 to 130

**E414FR A&B:**

Low viscosity, filled  
Black  
Specific Gravity @ 25C : 1.57  
Viscosity @ 25C (cps): 10000  
Shore Hardness: D75  
Temperature Range C: -65 to 155

**E415FR A&B:**

Very low viscosity  
Black  
Specific Gravity @ 25C: 1.61  
Viscosity @ 25C (cps): 2600  
Shore Hardness: D90  
Temperature Range C: -55 to 155

**E466FR A&B:**

Low viscosity, very low dielectric  
Black  
Specific Gravity @ 25C: 0.82  
Viscosity @ 25C (cps): 5000  
Shore Hardness: D80  
Temperature Range C: -65 to 130

**E492FR A&B:**

Medium viscosity, filled  
Blue  
Specific Gravity @ 25C: 1.68  
Viscosity @ 25C (cps): 19000  
Shore Hardness: D82  
Temperature Range C: -65 to 130

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**Specialty Materials:**

**E169A&B:**

Medium viscosity, filled  
Beige  
Specific Gravity at 25C: 1.45  
Viscosity @ 25C (cps): 13000  
Shore Hardness: D65  
Temperature Range C: -55 to 155

**E435A&B:**

Low viscosity, unfilled  
Brown  
Specific Gravity at 25C: 1.10  
Viscosity @ 25C (cps): 2000  
Shore Hardness: D55  
Temperature Range C: -50 to 155

**E463:**

Medium viscosity, filled  
Black  
Specific Gravity at 25C: 0.80  
Viscosity at 25C (cps): 5000  
Shore Hardness: D83  
Temperature Range C: -65 to 130

**E464A&B:**

Medium viscosity, filled  
White  
Specific Gravity at 25C: 0.87  
Viscosity at 25C (cps): 18000  
Shore Hardness: D80  
Temperature Range C: -55 to 130

**E490:**

Medium viscosity, filled  
Blue  
Specific Gravity at 25C: 1.60  
Viscosity @ 25C (cps): 34000  
Shore Hardness: D90  
Temperature Range C: -55 to 155

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**Specialty Materials (Continued):**

**E491A&B:**

Low viscosity, unfilled  
Amber  
Specific Gravity @ 25C: 1.06  
Viscosity @ 25C (cps): 2000  
Shore Hardness: A53  
Temperature Range C: -65 to 155

**E4866A&B:**

Thixotropic conductive  
Silver  
Specific Gravity @ 25C: 2.70  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D80  
Temperature Range C: -65 to 120

**E4876A&B:**

Thixotropic conductive  
Silver  
Specific Gravity @ 25C: 2.50  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D80  
Temperature Range C: -65 to 125

**E4877A&B:**

Thixotropic conductive  
Silver  
Specific Gravity @ 25C: 2.60  
Viscosity @ 25C (cps): Paste  
Shore Hardness: D88  
Temperature Range C: -65 to 160

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):**

**Epoxy Hardeners:**

**RT-1/RT-1AX:**

Modified aliphatic polyamine  
Color: Light Straw  
Viscosity @ 25C, cps: 80-105  
Specific Gravity @ 25C: 1.00  
Pot Life @ 25C: 1-2/0.5-1  
Room temperature cure, rigid system, suitable for castings  
up to 200g RT-1AX similar to RT-1 but twice as fast. HDT 125C.

**RT-7/RT-7LC:**

Modified aliphatic diamine  
Color: Light Straw  
Viscosity @ 25C cps: 10-30  
Specific Gravity @ 25C: 1.01  
Pot Life @ 25C: 1-2  
Room temperature cure, excellent air release, very low viscosity, HDT 70C, excellent impact resistance, semi-rigid.  
RT-7LC higher viscosity version.

**RT-8:**

Modified tertiary amine  
Color: Light Straw  
Viscosity @ 25C, cps: 900  
Specific Gravity @ 25C: 0.99  
Pot Life @ 25C: 4-6  
Meets MIL-1-16923E, very low exotherm, semi-rigid system,  
excellent impact resistance, excellent for large castings. HDT  
85C.

**RT-10/RT-10LV:**

Polyamine  
Color: Amber  
Viscosity @ 25C, cps: 25000/14000  
Specific Gravity @ 25C: 0.97  
Pot Life @ 25C: 1-3  
Room temperature cure, for very large castings, very low  
exotherm, ratio may be varied to produce flexible system.  
RT-10LV low viscosity, HDT 95C

**RT-13:**

Modified polyamine  
Color: Amber  
Viscosity @ 25C, cps: 450  
Specific Gravity @ 25C: 0.94  
Pot Life @ 25C: 1-3  
Room temperature cure, good for large castings, semi-rigid  
system, excellent impact resistance, good adhesion, HDT 100C

**CASTALL, INC.: Epoxies: Electronic Insulating Applications  
(Continued):****Epoxy Hardeners (Continued):****RT-1355/RT-1355AX:**

Modified polyamine

Color: Amber

Viscosity @ 25C, cps: 125

Specific Gravity @ 25C: 0.97

Pot Life @ 25C: 2-4/1-3

Room temperature cure, medium size castings, low exotherm, excellent impact resistance. RT-1355AX faster version, HDT 75C

**RT-55:**

Modified aliphatic polyamine

Color: Tan

Viscosity @ 25C, cps: 60-80

Specific Gravity @ 25C: 0.98

Pot Life @ 25C: 2-4

Room temperature cure, properties close to RT-7, medium size castings not for thin film. HDT 65C

**E-62S:**

Modified cycloaliphatic diamine

Color: Pale Yellow

Viscosity @ 25C, cps: 100

Specific Gravity @ 25C: 0.99

Pot Life @ 25C: 1-2

Elevated temperature cure, very rigid system. HDT 155C

**E-67S:**

Modified cycloaliphatic diamine

Color: Pale Yellow

Viscosity @ 25C, cps: 105

Specific Gravity @ 25C: 0.98

Pot Life @ 25C: 1

Elevated temperature cure, very rigid system, E-62LR slower cure and for larger castings. HDT 155C.

**HT-75:**

Anhydride

Color: Tan

Viscosity @ 25C, cps: Wax

Specific Gravity @ 25C: 1.30

High temperature cure, excellent electrical properties at high temperature HDT 200C



**COATINGS/COMPOSITES: CONDUCTOP Conductive Flooring:**

**Basic Description:**

A seamless, non-porous, self leveling, 100% solids, poured epoxy coating that provides a permanent conductive or dissipative, ESD surface - 50 mils thick

Industries Served: Electronics, Aerospace, Telecommunications, Data Processing

Typical Applications: Coating concrete, vinyl tile, sheet flooring, wood or plastic substrates to provide permanent conductive or dissipative electrical characteristics on surfaces such as floors, bench tops, shelves, trays and bins.

Features: Durable surface, greater compressive strength than concrete, with excellent chemical and heat resistance. Completely seamless, non peeling, smooth, shiny finish. Attractive pastel colors, low maintenance. Maintains conductivity throughout the thickness and life of the coating. Self leveling, easily installed.

Conductivity Range: Dissipative: 1 to 1,000 megaohms  
Conductive: 25,000 to 1,000,000  $\Omega$

Sealer: CONDUCTSEAL - One or more coats required to seal and neutralize floor prior to the application of CONDUCTPRIME.

Primer: CONDUCTPRIME D for a dissipative resistance floor.  
CONDUCTPRIME C for a conductive resistance floor.

Topcoat: A coat of PROTECTOP, a protective finish, is recommended to avoid marring of the surface during the completion of construction and move in of equipment.

Coverage/Packaging: One coat. Covers 30 square feet per gallon at 50 mils. All units come as two parts that, when mixed together, make up the designated unit volume.

Workbench unit - a complete, boxed unit containing the primer and topcoat needed to cover 15 sq. ft. at 55 mils thick.

Application Method: Spread with vee-notched trowel or squeegee and back rolled with a plastic loop roller, then product will self level.

Working Time: 30 to 45 minutes after mixing.

Cure Time: Tack free in 8 hours, foot traffic after 24 hours, light forklift traffic after 72 hours. Surface should be protected during construction.

Standard Colors: Off-white, light blue, light green, light beige, light and medium gray, and tan.

Chemical Resistance: Excellent general resistance to splash and spill of most chemicals, including solvents, acids, and fluxes.

Heat Resistance: Unaffected by molten solder (500F).

Solids by Volume: 100%

Compressive Strength: 8,000 psi

Flexural Strength: 4,000 psi

Tensile Strength: 2,500 psi

Hardness: 75

Abrasion Resistance: 0.1 gm. max.

Coefficient of Friction: 0.48

**COATINGS/COMPOSITES: CONCRETE/FIBRECRETE/CONOGLAZE**  
**Industrial Epoxy Flooring Systems:**

Sealers and Thin Film Coatings:

**CONOWELD:**

Is a low viscosity penetrating primer and sealer.

**CONOGLAZE:**

Is a high gloss, pigmented epoxy coating.

**CONOTHANE:**

Was developed to be the clearest, most durable and non-yellowing urethane sealer on the market.

High Build Protective Coatings:

**FIBRECRETE:**

Is a fiber reinforced epoxy system.

Decorative Coatings:

**CONOQUARTZ:**

Provides a very decorative, colored quartz aggregate finish.

**SELF LEVELING:**

Is a very easily applied epoxy system.

Floor Toppings/Resurfacers:

**CONCRETE:**

Can be used to resurface old or protect new concrete floors.

**FAST PATCH:**

Is a quick setting epoxy mortar.

Epoxy Floor Coating and Topping Guide:

Clear Sealers:

**CONOWELD:**

Flooring Needs: Dustproof, easy maintenance, clear gloss  
Thickness: 3-8 mils

**CONOGLAZE TC:**

Finish is uniform in appearance, clear semi-gloss  
Thickness: 8-10 mils

Pigmented Thin Film Coatings:

**CONOWELD and CONOGLAZE TC:**

Flooring Needs: Easily applied, economical, step up from paint.

Thickness: 8-10 mils

**CONOWELD and CONOGLAZE TC:**

Flooring Needs: Very low maintenance, attractive and very durable.

Thickness: 10-16 mils

**CONOWELD and CONOGLAZE GP and CONOTHANE:**

Super gloss with maximum light reflectance.

Thickness: 14-18 mils

**COATINGS/COMPOSITES: CONCRETE/FIBRECRETE/CONOGLAZE Industrial Epoxy Flooring System (Continued):**

**Epoxy Floor Coating and Topping Guide (Continued):**

**High Build Protective Coating:**

**CONOWELD and FIBRECRETE GP & CONOGLAZE TC:**

Flooring Needs: Extremely flexible, durable, waterproof and skid resistant with optional high gloss topcoating.

Thickness: 50-60 mils

**Decorative Coatings:**

**CONOWELD and CONOGLAZE SL:**

Flooring Needs: Easily installed, self leveling finish that is very smooth and decorative with some skid resistance.

Thickness: 55-65 mils

**CONOQUARTZ:**

Flooring Needs: Decorative quartz or other aggregate surface.

Thickness: 60-120 mils

**CONCRETE SL:**

Flooring Needs: Easily installed, self leveling finish.

Durable, smooth surface that is sanitary and very easy to clean.

Thickness: 1/8"

**Floor Toppings/Resurfacers:**

**CONCRETE CF:**

Flooring Needs: Best resistance to fats, oils and most chemicals.

Thickness: 1/4"

**CONCRETE GP:**

Flooring Needs: Tough and durable. General chemical resistance.

Thickness: 1/4"

**CONCRETE FP:**

Flooring Needs: General purpose patching, anchoring compound.

Thickness: 5/8"+

**CONCRETE HC:**

Flooring Needs: High resistance to heat and chemicals.

Thickness: 1/4"

**CONCRETE LT:**

Flooring Needs: Low temperature applications.

Thickness: 1/4"

**CONCRETE MA:**

Flooring Needs: High resistance to mineral acids.

Thickness: 1/4"

**CONCRETE SC:**

Flooring Needs: High resistance to solvents and chemicals.

Thickness: 1/4"

**CONAP, INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems:**

**RN-1000:**

A diluted, low viscosity, casting system recommended for potting and encapsulating resistors, connectors, solenoids, transformers, coils and other electrical devices.

Hardner: EA-02

Mix Ratio-by Weight: Resin/Hardner: 100/11

Mixed Viscosity, cps @ 25C: 600

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight: Resin/Hardner: 100/28

Mixed Viscosity, cps @ 25C: 500

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-87

Mix Ratio-by Weight: Resin/Hardner: 100/37

Mixed Viscosity, cps @ 25C: 250

Pot Life 100 Grams at 25C: 1.5 hr.

**FR-1010:**

Filled version of RN-1000 with lower shrinkage, improved thermal properties and lower coefficient of expansion.

Hardner: EA-02

Mix Ratio-by Weight: Resin/Hardner: 100/5.5

Mixed Viscosity, cps @ 25C: 2,800

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight: Resin/Hardner: 100/14

Mixed Viscosity, cps @ 25C: 2,400

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-87

Mix Ratio-by Weight: Resin/Hardner: 100/18.5

Mixed Viscosity, cps @ 25C: 2,400

Pot Life 100 Grams at 25C: 1.5 hr

**FR-1046:**

A filled, non-abrasive, low viscosity, low shrinkage, low exotherm system with excellent resistance to thermal shock and very good electrical insulation properties. Low cost.

Hardner: EA-02

Mix Ratio-by weight Resin/Hardner: 100/5.5

Mixed Viscosity, cps @ 25C: 6,800

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight Resin/Hardner: 100/14

Mixed Viscosity, cps @ 25C: 3,600

Pot Life 100 Grams at 25C: 50 min.

Hardner: EA-87

Mix Ratio-By Weight Resin/Hardner: 100/18

Mixed Viscosity, cps @ 25C: 2,000

Pot Life 100 Grams at 25C: 50 min.

**CONAP INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems (Continued):**

**Room Temperature Curing Systems (Continued):**

**FR-1047:**

Flame retardant (U.L. 94V-0), non-abrasive, epoxy system. It has excellent resistance to thermal shock, low exotherm, and good electrical properties, typified by very good arc resistance.

Hardner: EA-02

Mix Ratio-by Weight Resin/Hardner: 100/4.5

Mixed Viscosity, cps @ 25C: 15,000

Pot Life 100 Grams at 25C: 55 min.

Hardner: EA-028

Mix Ratio-by Weight Resin/Hardner: 100/11

Mixed Viscosity, cps @ 25C: 2,500

Pot Life 100 Grams at 25C: 80 min.

Hardner: EA-87

Mix Ratio-by Weight Resin/Hardner: 100/13

Mixed Viscosity, cps @ 25C: 3,200

Pot Life 100 Grams at 25C: 75 min.

**RN-1200:**

An undiluted, low viscosity potting and encapsulating system with excellent impact and thermal shock resistance.

Hardner: EA-02

Mix Ratio-by Weight Resin/Hardner: 100/11

Mixed Viscosity, cps @ 25C: 3,000

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight Resin/Hardner: 100/28

Mixed Viscosity, cps @ 25C: 1,500

Pot Life 100 Grams at 25C: 40 min.

Hardner: EA-87

Mix Ratio-by Weight Resin/Hardner: 100/37

Mixed Viscosity, cps @ 25C: 1,500

Pot Life 100 Grams at 25C: 60 min.

**FR-1210:**

Filled version of RN-1200 with lower shrinkage, improved thermal properties and lower coefficient of expansion.

Hardner: EA-02

Mix Ratio-by Weight Resin/Hardner: 100/5.5

Mixed Viscosity, cps @ 25C: 10,000

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight Resin/Hardner: 100/14

Mixed Viscosity, cps @ 25C: 9,000

Pot Life 100 Grams at 25C: 40 min.

Hardner: EA-87

Mix Ratio-by Weight Resin/Hardner: 100/18.5

Mixed Viscosity, cps @ 25C: 4,500

Pot Life 100 Grams at 25C: 60 min.

**CONAP INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems (Continued):**

**Room Temperature Curing Systems (Continued):**

**FR-1258:**

A filled, non-abrasive potting and encapsulating system with moderate to high viscosity, low shrinkage, low exotherm, and excellent resistance to thermal shock. Low cost.

Hardner: EA-02

Mix Ratio-by Weight Resin/Hardner: 100/5.5

Mixed Viscosity, cps @ 25C: 17,000

Pot Life 100 Grams at 25C: 30 min.

Hardner: EA-028

Mix Ratio-by Weight Resin/Hardner: 100/14

Mixed Viscosity, cps at 25C: 5,300

Pot Life 100 Grams at 25C: 40 min.

Hardner: EA-87

Mix Ratio-by Weight Resin/Hardner: 100/18

Mixed Viscosity, cps at 25C: 3,300

Pot Life 100 Grams at 25C: 30 min.

**FR-1259:**

A high viscosity, flame retardant (U.L. 94V-0) system with high thermal conductivity.

Hardner: EA-89

Mix Ratio-By Weight Resin/Hardner: 100/4

Mixed Viscosity, cps at 25C: 35,000

Pot Life 100 Grams at 25C: 35 min.

**Elevated Temperature Curing Systems:**

**RN-1000:**

A diluted low viscosity system with high heat distortion properties.

Hardner: EA-117

Mix Ratio-by Weight Resin/Hardner: 100/20

Mixed Viscosity cps @ 25C: 800

Pot Life 100 Grams at 25C: 8 hrs.

**FR-1010:**

Filled, high heat distortion potting and encapsulating system with excellent electrical properties, chemical resistance, and lower shrinkage and coefficient of expansion.

Hardner: EA-117

Mix Ratio-by Weight Resin/Hardner: 100/10

Mixed Viscosity cps @ 25C: 3,000

Pot Life 100 Grams at 25C: 8 hrs.

**CONAP INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems (Continued):**

**Elevated Temperature Curing Systems:**

**FR-1046:**

High heat distortion, filled, non-abrasive, low shrinkage, low exotherm system with excellent thermal shock resistance.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/10

Mixed Viscosity, cps @ 25C: 10,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1047:**

Flame retardant (U.L. 94 V-O), filled, non-abrasive casting system with excellent thermal shock resistance, low exotherm, very good arc resistance, and high heat distortion properties.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/7

Mixed Viscosity, cps @ 25C: 24,000

Pot Life 100 Grams at 25C: 8 Hrs.

**RN-1200:**

An undiluted, high heat distortion casting system with excellent electrical properties and chemical resistance.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/20

Mixed Viscosity, cps @ 25C: 2,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1210:**

Filled version of RN-1200 with lower shrinkage and improved thermal properties and lower coefficient of expansion.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/10

Mixed Viscosity, cps @ 25C: 10,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1258:**

High heat distortion, non-abrasive filled potting system with moderate to high viscosity and excellent thermal shock resistance.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/10

Mixed Viscosity, cps @ 25C: 34,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1259:**

A high viscosity, flame retardant (U.L. 94 V-O) system with high thermal conductivity and high heat distortion properties.

Hardner: EA-117

Mix Ratio-By Weight Resin/Hardner: 100/4

Mixed Viscosity, cps @ 25C: 85,000

Pot Life 100 Grams at 25C: 8 Hrs.

**CONAP, INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems (Continued):****Elevated Temperature Curing Systems (Continued):****RN-1200:**

An undiluted, low viscosity, general purpose potting system with excellent impact and thermal shock resistance.

Hardner: EA-80

Mix Ratio-By Weight Resin/Hardner: 100/14

Mixed Viscosity, cps at 25C: 12,000

Pot Life 100 Grams at 25C: 24 Hrs.

**FR-1210:**

Filled version of RN-1200 which has very low exotherm and is recommended for large mass castings.

Hardner: EA-80

Mix Ratio-By Weight Resin/Hardner: 100/7

Mixed Viscosity, cps at 25C: 40,000

Pot Life 100 Grams at 25C: 24 Hrs.

**RN-1600:**

Flexible, unfilled, low viscosity, epoxy resin system recommended for potting, encapsulation and impregnation.

Hardner: EA-039

Mix Ratio-By Weight Resin/Hardner: 100/67

Mixed Viscosity, cps at 25C: 1,800

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1610:**

A filled, high performance flexible epoxy casting system. Little change in hardness after aging at 155C. Recommended for potting and encapsulating transformers, coils and similar electrical devices.

Hardner: EA-039

Mix Ratio-By Weight Resin/Hardner: 100/25

Mixed Viscosity, cps at 25C: 11,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1620:**

Flame retardant version of FR-1610

Hardner: EA-039

Mix Ratio-By Weight Resin/Hardner: 100/26

Mixed Viscosity, cps at 25C: 11,000

Pot Life 100 Grams at 25C: 8 Hrs.

**FR-1630:**

Filled, thermally conductive, flexible epoxy potting system. Recommended for encapsulation of modules, strain and heat sensitive units, transformers and coils.

Hardner: EA-039

Mix Ratio-By Weight Resin/Hardner: 100/15.5

Mixed Viscosity, cps at 25C: 12,000

Pot Life 100 Grams at 25C: 8 Hrs.



**CONAP, INC.: CONAPOXY CONACURE Epoxy Potting & Encapsulating Systems (Continued):**

**Impregnating Resins:**

**IM-1168:**

Single component, 100% solids epoxy impregnating resins  
Mixed Viscosity, cps at 25C: 350

**Electrically Conductive Adhesives:**

**FR-1241:**

Electrically conductive, silver filled epoxy adhesive.

Hardner: EA-04

Mix Ratio-by Weight Resin/Hardner: 100/6.5

Mixed Viscosity, cps at 25C: Light Paste

Pot Life 100 Grams at 25C: 30 min.

**FR-1241:**

Electrically conductive, silver filled epoxy adhesive.

Hardner: EA-055

Mix Ratio-by Weight Resin/Hardner: 100/3.3

Mixed Viscosity, cps at 25C: Light Paste

Pot Life 100 Grams at 25C: 6 Hrs.

**COSMIC PLASTICS, INC.: Epoxy Molding Compounds:****E484:**

Is a short glass-filled electrical grade epoxy molding compound which demonstrates excellent mechanical strength and electrical properties, especially at extremely high temperatures. It is the material of choice in electrical hardware applications. It has a UL-94 VO rating in 1/16" thickness and has passed NASA outgassing tests.

Specific Gravity: 1.84  
Bulk Factor: 2.2  
Molding Pressure psi: 100-5000  
Molding Temperature F: 280-350  
Molding Shrinkage in./in.: 0.002-0.004  
Flammability Rating: UL-94 .125" and .0625": VO  
Certified to proposed Military Spec: MIL-M-14  
Type: GEI-5

**E486:**

Is a glass-filled epoxy molding compound, in a granular form. It has been formulated for electronic devices requiring low transfer pressures and mold temperatures, such as resistors, thermistors, capacitors, inductors, transformer headers and connectors. It offers excellent dimensional stability and thermal shock resistance. Standard spiral flow range is 20-50" (EMMI) at 300F; 1000 psi.

Specific Gravity: 1.70  
Bulk Factor: 2.2  
Molding Pressure PSI: 300-1000  
Molding Temperature F: 260-320  
Molding Shrinkage in./in., Transfer: 0.004-0.006

**E487:**

Is a short glass-filled, high-heat resistant epoxy molding compound. Its main characteristics are excellent mechanical strength and retention of electrical properties at elevated temperatures.

Specific Gravity: 1.85  
Bulk Factor: 2.2  
Molding Pressure PSI: 100-5000  
Molding Temperature F: 280-350  
Molding Shrinkage in./in.: 0.002-0.004  
Flammability Rating: UL-94 .125": V1  
Certifiable to proposed Military Spec: MIL-M-14  
Type: GEI-5

**COSMIC PLASTICS, INC.: Epoxy Molding Compounds (Continued):**

**E4940:**

Is a mineral-glass filled epoxy molding compound formulated for use in high-volume encapsulation of resistor networks and fiber optic connectors requiring high quality, reliability and good moldability. It features excellent dimensional stability, improved thermal cycling and exceptional moisture resistance. Standard spiral flow range is 23-33" (EMMI) at 300F; 1000 psi. It has a hot plate gel time of 22-30 seconds at 320F, and 18-26 at 360F.

Specific Gravity: 1.85  
Bulk Factor: 2.00  
Molding Pressure psi: 700-1000  
Molding Temperature F: 300-340  
Molding Shrinkage in./in. Transfer: 0.005

**E4930:**

Is an application specific epoxy molding compound featuring excellent moisture resistance, thermal cycling stability and exceptional moldability. It is primarily designed to encapsulate optocouplers, capacitors, coils, resistors and other passive electronic devices. Standard spiral flow range is 28-38" (EMMI) at 325F; 1000 psi, and flow duration of 25-35 seconds at 350-1000 psi. It has a hot plate gel time of 22-28 seconds at 320F.

Specific Gravity: 2.0  
Bulk Factor: 2.0  
Molding Pressure psi: 300-1000  
Molding Temperature F: 300-340  
Molding Shrinkage in./in., Transfer: 0.007

**E4920:**

Is a mineral-filled epoxy molding compound, in a granular form. It is specifically formulated to encapsulate passive electronic devices such as capacitors, inductors, diodes and rectifiers. It features excellent moisture resistance, thermal cycling stability, and outstanding moldability. Molded devices do not support fungus growth. Standard spiral flow range is 20-40" (EMMI) at 300F; 1000 psi, and a hot plate gel time of 18-26 seconds at 320C. Standard colors are gold, green and black.

Specific Gravity: 1.90  
Bulk Factor: 2.0  
Molding Pressure psi: 50-1000  
Molding Temperature F: 250-350  
Molding Shrinkage in./in., Transfer: 0.004-0.006

**JOHN C. DOLPH CO.: DOLPHON Epoxy Resins:**

**One Part Epoxy Resins:**  
**One Package Impregnant:**

**DOLPHON CC-1090:**

One package, low viscosity epoxy for impregnating coils, transformers and electronic components wound with fine wire.

**DOLPHON CC-1115:**

Excellent electrical properties and moisture resistance. Approved use on sealed units for MIL-M-17060E. Passes submergence tests.

**DOLPHON CC-1118-LV:**

Excellent high temperature electrical properties and moisture resistance. Approved use on sealed units for MIL-M-17060E. Passes submergence tests.

**Dipping:**

**DOLPHON CB-1067:**

One package, flexible, black, thixotropic epoxy dipping resin for transformers and conformal coating. Good thermal shock and noise reduction.

**DOLPHON CR-1098:**

Durable red epoxy dipping resin for conformal coatings. Can be used to replace coil taping. Suitable for conveyor processing.

**Wet Winding:**

**DOLPHON CN-1119:**

Especially recommended for wet winding, sealing and filling. Extraordinary bond strength and chemical resistance. Superior electrical properties.

**Two Part Epoxy Resins:**

**Wet Winding:**

**DOLPHON CG-1062-A:**

Thixotropic epoxy resin for wet winding and encapsulating coils, resistors and transformers. Also used to seal transformer margins.

**JOHN C. DOLPH CO.: DOLPHON Epoxy Resins (Continued):**

**Two Part Epoxy Resins (Continued):**  
Ipregnating, Casting and Potting:

**DOLPHON CC-1024-A:**

Clear, unfilled epoxy system where maximum penetration is desired. Low viscosity and flexibility permit use even on fine wires as a general purpose impregnant and encapsulant.

**DOLPHON CR-1050:**

Red, machineable epoxy system for potting and encapsulation of sensors, thermostats, coils, motors, transformers, electronic assemblies. Cures to a high gloss finish. Low viscosity allows easy mix and pour without voids.

**DOLPHON CB-1054-A:**

Flexible, black, flame retardant epoxy system for all types of electronic and electrical assemblies, transformers, coils, and motors. Especially recommended for MIL-T-27 and other military uses. Meets MIL-I-16923-C.

**DOLPHON CB-1069:**

Black, machineable epoxy system for all types of electrical and electronic assemblies. Excellent thermal conductivity. This medium viscosity, filled epoxy cures to a fine, glossy finish.

**DOLPHON CB-1078:**

Versatile, black, epoxy system for potting and casting all varieties of coils, transformers, electronic modules, and power supplies. This very low cost compound offers low shrinkage, high thermal conductivity, plus excellent electrical and physical properties.

**DOLPHON CB-1112-A:**

Flexible, black, flame retardant epoxy system for electrical and electronic parts in the office equipment, computer, appliance and home entertainment industries. Recognized under UL-94, V-0. Yellow cards available.

**Bonding:**

**DOLPHON CR-1056-B:**

Epoxy adhesive for bonding applications-good thermal shock resistance-thixotropic paste.

**JOHN C. DOLPH CO.: DOLPHON Resin Kits:**

Method of Application: Buttering

**DOLPHON CR-1034-H:**

Thixotropic epoxy paste, semi-rigid, for stators armatures, coil ends, marginal ends of transformers.

Color: Red

Hardness Shore "D" @ 73F.: 80

Pot Life @ 80F. 1# Mass: 45 min.

Temp Classification: B

Cure Time: 2-4 hrs. @ 70F.

Complete Cure: 24 hrs. @ 70F.

**DOLPHON CB-1057:**

Thixotropic epoxy paste, flexible, 1:1 mixing ratio, for stators, armatures, coil ends, marginal ends of transformers

Color: Black

Hardness Shore "D" @ 73F.: 70

Pot Life @ 80F. 1# Mass: 2 hours

Temp Classification: B

Cure Time: 2-4 hrs. @ 70F.

Complete Cure: 24 hrs. @ 70F.

Casting & Filling:

**DOLPHON CR-1035:**

Low viscosity epoxy, semi-rigid, for casting stators, solenoid coils, control coils

Color: Red

Hardness Shore "D" @ 73F.: 75

Pot Life @ 80F. 1# Mass: 40 min.

Temp. Classification: B

Cure Time: 2-4 hrs. @ 70F.

Complete Cure: 24 hrs. @ 70F.

**DOLPHON CC-1120:**

Extremely flexible, low viscosity potting compound for electromagnetic transformers.

Color: Clear

Hardness Shore "A" @ 73F.: 35

Pot Life @ 80F. 1# Mass: 70 min.

Temp. Classification: F

Cure Time: 3 hrs. @ 70F.

Complete Cure: 72 hrs. @ 70F.

**JOHN C. DOLPH CO.: DOLPHON Resin Kits (Continued):**

Method of Application: Brush-On/Spraying

**DOLPHON CO-1060:**

Thixotropic epoxy, semi-rigid, for brush-on applications on stators and coils. Excellent for abrasive conditions.

Color: Orange

Hardness Shore "D" @ 73F.: 85

Pot Life @ 80F. 1# Mass: 45 min.

Temp. Classification: B

Cure Time: 2-4 hrs. @ 70F.

Complete Cure: 24 hrs. @ 70F.

**DOLPHON CB-1128:**

Extremely flexible, thixotropic resin for brushing or spraying. Seals out moisture. Excellent chemical, abrasion and crack resistance.

Color: Black

Hardness: Shore "A" @ 73F: 45

Pot Life @ 80F. 1# Mass: 45 min

Temp Classification: F

Cure Time: 3-4 hrs. @ 70F.

Complete Cure: 72 hrs. @ 70F.

**DOLPHON CW-1081:**

Thixotropic epoxy, flexible, for "spray-on" protection of motor stators.

Color: Brown

Hardness Shore "D" @ 73F.: 55

Pot Life @ 80F. 1# Mass: 6 hours

Temp Classification: B

Cure Time: 1 hr. @ 150F. or 12-24 hrs. @ 70F.

Complete Cure: 72 hrs. @ 70F.

Method of Application: Flow-On

**DOLPHON CC-1089:**

Low viscosity epoxy, flexible, for impregnating and sealing stators, coils and armatures. Excellent chemical and moisture resistance, 1:1 mixing ratio.

Color: Amber

Hardness Shore "D" @ 73F.: 70

Pot Life @ 80F. 1# Mass: 3 days

Temp Classification: F

Cure Time: 15 min. @ 275F.

**JOHN C. DOLPH CO.: DOLPHON Resin Kits (Continued):**

Method of Application: Flow-On (Continued):

**DOLPHON CC-1095:**

Low viscosity epoxy, semi-rigid, for impregnating and sealing stators, coils and transformers. Cure at low temperature. Recommended for hermetics.

Color: Amber

Hardness Shore "D" @ 73F.: 75

Pot Life @ 80F. 1# Mass: 25 min.

Temp Classification: F

Cure Time: 15 min. @ 135F.

Method of Application: Pour-On

**DOLPHON CC-1094:**

Low viscosity polyester, semi-rigid, for impregnating and sealing stators, armatures, coils and transformers. Cures at low temperatures - low cost system.

Color: Amber

Hardness Shore "D" @ 73F.: 75

Pot Life @ 80F. 1# Mass: 3 hours

Temp. Classification: H

Cure Time: 15 min. @ 150F.

Method of Application: Tube Kits

**DOLPHON Epoxy Cement:**

Tough, flexible cement for bonding application supplied in handy 1:1 tubes.

Color: Red

Hardness Shore "D" @ 73F.: 70

Pot Life @ 80F. 1# Mass: 1 hour

Temp. Classification: B

Cure Time: 1-2 hrs. @ 70F.

Complete Cure: 24 hrs. @ 70F.

**DOLPHON CN-1065:**

Rigid adhesive for bonding applications-supplied in handy 2:1 tube kits.

Color: Neutral

Hardness Shore "D" @ 73F.: 80

Pot Life @ 80F. 1# Mass: 10 min.

Temp. Classification: B

Cure Time: 1/2-1 hr. @ 70F.

Complete Cure: 24 hrs. @ 70F.



**JOHN C. DOLPH CO.: DOLPHON VPI Resins: Epoxy Products:**

**DOLPHON CC-1090:**

A clear one-package, low viscosity resin for maximum impregnation of coils, transformers and electronic components. Its low viscosity reduces clean-up of treated units.

**DOLPHON CC-1115:**

A one-part, thixotropic, impregnating and coating compound. This product gives excellent penetration on random wound units with a 12 to 16 mil coating for maximum moisture and chemical resistance. CC-1115 is recommended for Navy applications since it passes a total submersion test with only one VPI treatment. Tank stability of this product is excellent.

**DOLPHON CC-1118:**

Dolph premium epoxy product that rivals polyesters in both thermal classifications and electrical properties at elevated temperatures. For applications requiring maximum moisture and chemical resistance and high voltage performance at elevated temperatures, this should be your first choice.

**DOLPHON CC-1118-LV:**

The low viscosity version of CC-1118 for form wound or tightly wound units. It offers the same high voltage performance at elevated temperature as CC-1118. Tank stability of this product is excellent and allows dipping at 140F for maximum penetration.

**CC-1090:**

Rigid/Single Comp  
Viscosity, cps 1 RPM: 800-1000  
Gel Time, Min.: 20-35 @ 285F  
Pot Life @ 70F: 6 mos.

**CC-1115:**

Thixotropic/Semi-Flex/Single Comp  
Viscosity, cps 1 RPM: 11800-20000  
Gel Time, Min: 30-45 @ 285F  
Pot Life @ 70F: 6 mos.

**CC-1118:**

Thixotropic/Semi-Rigid/Single Comp  
Viscosity, cps 1 RPM: 14000-36000  
Gel Time, Min: 7-10 @ 285F  
Pot Life @ 70F: 12 mos.

**CC-1118LV:**

Thixotropic/Semi-Rigid/Single Comp  
Viscosity, cps 1 RPM: 6000-9000  
Gel Time, Min: 7-10 @ 285F  
Pot Life @ 70F: 12 mos.

**JOHN C. DOLPH CO.: Environmentally Safe Materials: Solventless Epoxy:****DOLPHON CC-1115:**

A one-part, thixotropic epoxy resin formulated for vacuum processing where high build with excellent penetration and retention is required. It has excellent chemical and moisture resistance, good thermal shock properties and good electrical properties

Method of Application: VPI

Cure: Time: 3 Hrs./Temp.: 325F

Viscosity: Brookfield cps, @ 77F: 4500-5500 @ 10 RPM

Catalyst: One-Part

Pot Life @ 70F: 1 Yr.

Flash Point: F: >200

**DOLPHON CC-1118LV:**

Unique thixotropic epoxy resin for vacuum impregnation where high voltage, low corona, superior chemical resistance and excellent electrical insulation properties are required. Allows dipping at temperatures in excess of 150F to improve impregnation and shorten processing time without affecting the resin stability. Impregnates and encapsulates in one cycle.

Method of Application: DIP/VPI

Cure: Time: 5 Hrs./Temp.: 325F

Viscosity: Brookfield cps. @ 77F: 2000-4000 @ 10 RPM

Catalyst: One-Part

Pot Life @ 70F: 1 Yr.

Flash Point: F.: >200

**DOLPHON CC-1137:**

A one-part, thixotropic epoxy modified polybutadiene compound designed for VPI, dip or brush applications. This flexible compound cures to a tough resilient coating that seals against moisture and chemical attack. Very high build for moisture or chemical protection.

Method of Application: VPI

Cure: Time: 8 Hrs./Temp.: 300F

Viscosity: Brookfield cps. @ 77F: 9000-14000 @ 10 RPM

Catalyst: One-Part

Pot Life @ 70F: Catalyzed: 1 Yr.

Flash Point: F: >200

**DOLPHON CC-1126:**

A two-package, trickle epoxy resin formulated for use on high speed rotating equipment or high abrasive or shock applications. The long pot life combined with short gel time and low viscosity make it well suited for commercial trickle conveyor machines.

Method of Application: Conveyor: Trickle

Cure: Time: 5 Min./Temp.: 300F

Gel Time: Min. @ 285F.: 1.3 Min.

Viscosity: Brookfield cps. @ 77F: 3500

Catalyst: 1126B

Pot Life @ 70F: Catalyzed: 8 Hrs.

Flash Point: F: >200

**EASTERN RESINS & CHEMICALS CORP.: Epoxy Compounds:**

**ER-721 Thermal Conductive Epoxy Compound:**

ER-721 is a medium-low viscosity epoxy resin offering high thermal conductivity, and excellent air release.

When cured, ER-721 forms a tough, rigid plastic with no stress development and with resulting great thermal shock resistance.

EC-115 Hardener is recommended for use with ER-721 where high heat of distortion is not required.

**General Purpose Epoxy Resin Compound ER-808:**

ER-808 is a low viscosity, undiluted epoxy compound of special interest for its ease of handling, low cost, minimum shrinkage and strong bonds to metals, ceramics and plastics. Its built-in flexibility and toughness eliminate stress cracking during cure and protect it from thermal shock failure.

ER-808 has been formulated to offer efficient air release with or without vacuum deaeration.

Although normally black, ER-808 is available unpigmented or colored to specification.

**ERCCO Decorative Epoxy Resin Coatings - ER-865, ER-869:**

These epoxy resin coatings developed especially for the jewelry industry result in hard, high gloss surfaces that are free from imperfections whether they are cured at room temperature or with heat.

These coatings are available in water clear, opaque and transparent color and colored pearl formulations. They are also available in various viscosities with thixotropic qualities to allow the uncured resin/curing agent mix to hold (i.e. not run) to uneven, non-horizontal surfaces.

**EASTERN Resin Decorative Metallic Coating:**

Epoxy Resin: ER-871

Curing Agent: EC-197

**ERCCO ERA-873/ER-219 Adhesive:**

This epoxy resin formulation provides excellent adhesion between metal, glass, ceramic, wood and most plastic and synthetic surfaces. It has been specifically developed to provide a bond with superior ability to withstand mechanical shock.

**ERCCO General Purpose Adhesive - ER 915 & ER 915LV:**

These ER 915 & ER 915LV resin formulations provide excellent adhesion to metal, glass, ceramic, wood and most plastic and synthetic surfaces.

**ERCCO Glass 1004 and Cure 1025:**

A two component system for a high endurance plain or textured finish on metal, wood, plastic & masonry. These resins are suitable for food processing plants and meat storage facilities.

**EMERSON & CUMING, INC.: Adhesives: General Purpose:****One Component Systems--Epoxy Based:****927-11:**

Filled, thixotropic, general purpose epoxy adhesive. Excellent chemical and thermal shock resistance. Low coefficient of thermal expansion. Recommended for bonding metals, plastics and ceramics.

**A-161:**

High peel strength (14 pli), heat curing epoxy adhesive. Specially thickened to retard flow or "sag" during cure. Good toughness and resiliency. Excellent adhesion to plasticized PVC, neoprene and fiberglass reinforced plastics.

**A-329:**

Fast heat curing epoxy adhesive. Thickened to prevent flow or "sag" during heat cure. Good thermal stability and chemical resistance. Recommended for bonding molded phenolic parts, steel and aluminum.

**A-359:**

Aluminum filled, heat curing epoxy adhesive. Sag resistant. Exceptional thermal and chemical resistance. High hot strength. Used for replacing brazing in pipe and air conditioner tube assemblies.

**D-275:**

Semi-rigid, high strength, fast curing, pourable, epoxy structural adhesive. Good peel strength (12 pli). Recommended for bonding metals, plastics and ceramics.

**D-778:**

High strength, semi-flexible, thixotropic, fast heat curing, epoxy structural adhesive. Good peel strength (20 pli). Recommended for reinforcing riveted or weld bonded metal panels for cabinets, buses, trailers or other sheet metal structures.

**G-909:**

High strength, thixotropic, flexible, epoxy adhesive. High peel strength (30 pli). Recommended for bonding copper, aluminum, fiberglass reinforced plastics. Good bonds to oily steel.

**EMERSON & CUMING, INC.: Adhesives: General Purpose (Continued):**

**Two Component System-Epoxy Based:**

**26A/B:**

Filled, room temperature curing, general purpose, epoxy adhesive. Recommended for varied uses including repair and manufacture of tools, furniture, boats, and electronic sub-assemblies. Available in tubes.

**286A/B:**

Filled, general purpose, thermally conductive, epoxy adhesive. Room temperature cure. Convenient mix ratio. Recommended for a wide variety of maintenance and production applications. Ideal for use in piping applications involving metal and plastic pipe.

**45**

Filled, general purpose, room temperature curing, epoxy adhesive and sealant.

**45 Clear:**

Clear, unfilled version of ECCOBOND 45.

**45LV:**

Lower viscosity version of ECCOBOND 45.

**45SC:**

Thixotropic paste version of ECCOBOND 45.

**51:**

Filled, general purpose, epoxy adhesive. Used with a variety of curatives. Excellent adhesion to a variety of metal, plastic and ceramic substrates. Available in colors.

**55:**

Unfilled, low viscosity, general purpose, epoxy adhesive. Used with a variety of curatives. Typical applications include electronic component assembly, staking of adjustment and calibration screws, anchoring of inserts, and end filling.

**787A/B:**

Thixotropic, high strength, room temperature curing, epoxy adhesive. Convenient mix ratio. Good general purpose adhesive for electrical/electronic applications.

**A-36:**

Unfilled, slightly thixotropic, general purpose, epoxy adhesive and sealant. Used with a variety of curatives. Very durable adhesive for bonding metals, ceramics and most plastics. Excellent resistance to water, acids, bases, and many solvents.

**A-38:**

Unfilled, thixotropic, general purpose, epoxy adhesive. Used with a variety of curatives. Excellent adhesion.

**EMERSON & CUMING, INC.: Adhesives: General Purpose (Continued):**

**Two Component Systems--Epoxy Based (Continued):**

**T-225 A/B:**

Two component, semi-flexible, thixotropic, non-sag, epoxy adhesive. Color coded/convenient mix ratio (2;1 by volume). Recommended for bonding to metals and rigid plastics.

**T-530 A/B:**

Flexible, two component, thixotropic, epoxy adhesive. Room temperature cure. Excellent peel strength (25 pli). Color coded/convenient mix ratio. Recommended for bonding elastomers, metals, and most plastics.

**Adhesives: Electrically Conductive:**

**Silver Filled Systems:**

**56C:**

Silver filled, high electrical conductivity, epoxy adhesive. Excellent thermal conductivity. Requires heat cure to obtain optimal properties. Recommended for applications where hot soldering is impractical. Listed on many government specifications.

**57C A/B:**

Silver filled, electrically conductive, room temperature curing, epoxy adhesive. Good thermal conductivity. Convenient 1:1 mix ratio by weight or volume. Adheres to a wide variety of substrates. Recommended for use in applications where hot soldering is impractical.

**83C:**

Two component, silver filled, electrically conductive, epoxy adhesive. Smooth, creamy consistency. Good thermal conductivity. Requires heat cure to obtain optimal properties. Easier handling version of 56C with similar properties.

**83C-1:**

One component, heat curing version of 83C. Silver filled. Smooth, creamy consistency. High electrical conductivity. Good thermal conductivity. Excellent adhesion to metals, glass, ceramics and many plastics.

**85C:**

Two component, moderate cost, silver filled, electrically conductive, epoxy adhesive. Higher viscosity version of C-14-7.

**EMERSON & CUMING, INC.: Adhesives: Electrically Conductive  
(Continued):**

**Silver Filled Systems (Continued):**

**C-14-7 A/B:**

Two component, moderate cost, silver filled, electrically conductive, epoxy adhesive. Can be cured at room temperature. Exhibits good durability and high adhesion to many substrates.

**C-429-2:**

One component, high strength, moderate cost, silver filled, electrically conductive, epoxy adhesive. Excellent adhesion and long term durability. Designed for use in miniature lamp bonding.

**C-770-3:**

One component, silver filled, electrically conductive, epoxy adhesive. Excellent adhesion at elevated temperatures. Good thermal conductivity. Excellent green strength. Suitable for screen printing and automatic machine dispensing.

**C-906-93:**

One component, high strength, high electrical conductivity, silver filled, epoxy adhesive. Good thermal cycle resistance. Conductivity and strength properties remain constant after long term exposure to heat or moisture.

**CS-489-2:**

One component, solvent containing, silver filled, electrically conductive, thermoplastic based coating and adhesive. Excellent flexibility. Good thermal conductivity, strength and thermal shock resistance. Room temperature drying. Recommended for terminal connections to such items as LCD displays and other electronic assemblies.

**CSM-933-65-1:**

One component, solvent containing, silver filled, thermoplastic based, surface mount adhesive. Excellent electrical conductivity (0.0005 ohm-cm). Good resistor push off strength (4-18 lb). Good thermal shock, fatigue, heat and humidity resistance. Excellent adhesion to tin, copper and most plastics.

**CT-2523 A/B:**

Two component, silver filled, electrically conductive, epoxy adhesive. Smooth, thixotropic paste consistency. Convenient 1:1 mix ratio. Long pot life (4 days). Designed for chip bonding in microelectronic applications.

**CT-5047-2 A/B:**

Two component, general purpose, silver filled, electrically conductive, epoxy adhesive. Can be cured at room temperature. Heat cure yields optimal properties. Excellent adhesion and heat resistance after cure. Recommended for use in antenna bonding, medical devices, RF shielding and lead attach.

**EMERSON & CUMING, INC.: Adhesives: Electrically Conductive  
(Continued):****Nickel Filled Systems:****64C A/B:**

Two component, nickel filled, electrically conductive, epoxy adhesive. Room temperature cure. Good balance of low cost and high conductivity. Recommended for use where exposure to salt water causes silver based systems to corrode.

**CT-5217 A/B:**

Two component, nickel filled version of CT-5047-2. Good electrical conductivity. Recommended for use where exposure to salt water causes silver filled based systems to corrode or where intermediate electrical conductivity is required.

**Carbon Filled Systems:****60C:**

One component, carbon filled, electrically conductive, epoxy adhesive. Heat curing. Used for electrical connection, prevention of RF leakage at joints and absorption and attenuation type surface coatings.

**60L A/B:**

Two component, carbon filled, electrically conductive, epoxy adhesive. Room temperature cure. Recommended for making metal to metal joints where RF leakage must be eliminated and for waveguide terminations.

**CT-5186:**

Two component, carbon filled version of CT-5047-2. Designed for use in grounding applications where minimum conductivity is required.

**Adhesives: Fast Cure:****One Component Systems--Epoxy Based:****927-68-6:**

Extremely fast gelling, one component, epoxy adhesive for sealing holes or for forming a very tough initial bond while the epoxy is curing. Thin films gel in 1-3 seconds @ 175C. Cure continues at room temperature after removal from heat.

**928-69-4:**

Pourable, very low heat curing, epoxy adhesive. Yields tough, durable bonds to a variety of materials. Designed for use on temperature sensitive substrates.



**EMERSON & CUMING, INC.: Adhesives: Fast Cure (Continued):**

**One Component Systems--Epoxy Based (Continued):**

**A-316-48:**

Pourable, fast heat curing, epoxy adhesive and insulation compound. Excellent chemical and heat resistance.

**A-329:**

Fast heat curing epoxy adhesive. Thickened to prevent flow or "sag" during heat cure. Good thermal stability and chemical resistance. Recommended for bonding molded phenolic parts, steel and aluminum.

**A-359:**

Aluminum filled, heat curing, epoxy adhesive. Sag resistant. Exceptional thermal and chemical resistance. High hot strength. Used for replacing brazing in pipe and air conditioner tube assemblies.

**A-359-LV:**

Lower thixotropy version of A-359.

**D-275:**

Semi-rigid, high strength, fast curing, pourable, epoxy structural adhesive. Good peel strength (12 pli). Recommended for bonding metals, plastics and ceramics.

**D-778:**

High strength, semi-flexible, thixotropic, fast heat curing, epoxy structural adhesive. Good peel strength (20 pli). Recommended for reinforcing riveted or weld bonded metal panels for cabinets, buses, trailers or other sheet metal structures.

**G-909:**

High strength, thixotropic, flexible, epoxy adhesive. High peel strength (30 pli). Recommended for bonding copper, aluminum, fiberglass reinforced plastics. Good bonds to oily steel.

**Two Component Systems--Epoxy Based:**

**XT-1316 A/B:**

Rapid room temperature curing, epoxy adhesive. Unfilled version of XT-2551. Five minute working life. Ideal for high volume production applications using automatic meter/mix equipment.

**XT-2551 A/B:**

Filled, rapid room temperature curing, epoxy adhesive. Five minute working life. Forms strong bonds to aluminum, steel, copper and brass. Exceptional fluorocarbon resistance makes it ideal for the repair of refrigeration tubing.

**EMERSON & CUMING, INC.: Adhesives: High Strength-Impact Resistance:****One Component Systems--Epoxy Based:****A-161:**

High peel strength (14 pli), heat curing, epoxy adhesive. Specially thickened to retard flow or "sag" during cure. Good toughness and resiliency. Excellent adhesion to plasticized PVC, neoprene and fiberglass reinforced plastics.

**A-451:**

Tough, resilient, epoxy adhesive having excellent adhesion to plasticized PVC, neoprene and other elastomers. High peel strength (28 pli). Good vibration resistance.

**D-271-6:**

Non-sag, fast heat curing, flexible, epoxy adhesive. Designed for bonding ABS, and other heat sensitive plastics. Good adhesive for glass and thin gauge metals. Recommended for use in bonding glass headlamps.

**G-757:**

Very flexible, thixotropic, epoxy adhesive. Excellent low temperature resistance. Excellent adhesion to glass, steel, copper, aluminum and fiberglass reinforced plastics. Recommended for use in headlamp glass bonding.

**Two Component Systems--Epoxy Based:****1760 A/B:**

Unfilled, low viscosity, room temperature curing, epoxy/urethane adhesive. Long working life. Convenient mix ratio. Exhibits excellent adhesion to flexible vinyl and neoprene substrates. Recommended for sealing vinyl insulated wire leads in sensors and control modules.

**24 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent impact resistance. Recommended for bonding glass, polystyrene, polysulfone, polycarbonate, rigid PVC and PVDC.

**27 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent performance under cryogenic conditions. Good impact and thermal shock resistance. Recommended for bonding glass and transparent plastics.

**EMERSON & CUMING INC.: Adhesives: High Strength--Impact Resistance (Continued):**

**Two Component Systems--Epoxy Based (Continued):**

**45:**

Filled, general purpose, room temperature curing, epoxy adhesive and sealant. Flexibility can be adjusted by the amount of Catalyst 15 used. Convenient mix ratio. Good impact resistance. Excellent adhesion to metal, glass, and plastic substrates.

**45 Clear:**

Clear, unfilled version of ECCOBOND 45.

**787 A/B:**

Thixotropic, high strength, room temperature curing, epoxy adhesive. Convenient mix ratio. Good general purpose adhesive for electrical/electronic applications.

**91:**

Fiberglass filled, medium viscosity, epoxy adhesive with excellent thermal cycling properties. Used with a variety of curatives. Designed for bonding metals exposed to high stress conditions and for bonding crystals to metals in continuous vibration applications.

**A-18:**

Unfilled, clear, high peel strength, epoxy adhesive. Retains its toughness, flexibility and elongation characteristics under extended service conditions. Recommended for bonding elastomers, metals, ceramics, and most plastics.

**T-4009 A/B:**

Filled, thixotropic, epoxy adhesive. Color coded for ease of use. Very flexible with good peel strength (15 pli). Forms tough, durable bonds to sheet steel and other metals. Recommended for reinforcing riveted or weld-bonded metal panels for cabinets, buses, trailers or other sheet metal structures.

**XT-5012-3 A/B:**

Pourable, impact resistant, room temperature curing epoxy structural adhesive. Color coded for ease of use. Excellent fatigue resistance. Bonds can be enhanced by post curing. Recommended for composite bonding of aluminum and fiberglass.

**EMERSON & CUMING, INC.: Adhesives: High Strength--Peel:**

**One Component Systems--Epoxy Based:**

**908-19:**

Pourable, semi-rigid, very high strength, fast cure, epoxy structural adhesive and sealing compound. Good peel strength and toughness. Good hot strength and dielectric properties up to 130C. Recommended for metal, plastic and ceramic substrates.

**A-161:**

High peel strength, heat curing, epoxy adhesive. Specially thickened to retard flow or "sag" during cure. Good toughness and resiliency. Excellent adhesion to plasticized PVC, neoprene and fiberglass reinforced plastics.

**A-451:**

Tough and resilient epoxy adhesive having excellent adhesion to plasticized PVC, neoprene and other elastomers. High peel strength. Good vibration resistance.

**D-271-6:**

Non-sag, fast heat curing, flexible, epoxy adhesive. Designed for bonding ABS, and other heat sensitive plastics. Good adhesive for glass and thin gauge metals. Good peel strength. Recommended for use in bonding glass headlamps.

**D-275:**

Semi-rigid, high strength, fast curing, pourable, epoxy structural adhesive. Good peel strength. Recommended for bonding metals, plastics and ceramics.

**D-778:**

High strength, semi-flexible, thixotropic, fast heat curing, epoxy structural adhesive. Good peel strength. Recommended for reinforcing riveted or weld bonded metal panels for cabinets, buses, trailers or other sheet metal structures.

**G-804-1:**

Unfilled, high peel strength, thixotropic, epoxy structural adhesive. Excellent adhesion to aluminum. Flow modified to permit roller coat application for honeycomb bonding.

**G-909:**

High strength, thixotropic, flexible, epoxy adhesive. High peel strength. Recommended for bonding copper, aluminum and fiberglass reinforced plastics. Good bonds to oily steel.

**EMERSON & CUMING, INC.: Adhesives: High Strength--Peel  
(Continued):**

**Two Component Systems--Epoxy Based:**

**45:**

Filled, general purpose, room temperature curing, epoxy adhesive and sealant. Flexibility can be adjusted by the amount of Catalyst 15 used. Convenient mix ratio. Good impact resistance. Excellent adhesion to metal, glass, and plastic substrates.

**91:**

Fiberglass filled, medium viscosity, epoxy adhesive with excellent thermal cycling properties. Used with a variety of curatives. Designed for bonding metals exposed to high stress conditions and for bonding crystals to metals in continuous vibration applications.

**T-4009 A/B:**

Filled, thixotropic, epoxy adhesive. Color coded for ease of use. Very flexible with good peel strength. Forms tough, durable bonds to sheet steel and other metals. Recommended for reinforcing riveted or weld-bonded metal panels for cabinets, buses, trailers or other sheet metal structures.

**T-530 A/B:**

Flexible, two component thixotropic epoxy adhesive. Room temperature cure. Excellent peel strength. Color coded/convenient mix ratio. Recommended for bonding elastomers, metals, and most plastics.

**Adhesives: High Strength--TLS:**

**One Component Systems--Epoxy Based:**

**2780-45:**

Filled, pourable, high temperature resistant, epoxy adhesive. Long term resistance to boiling glycol. Excellent thermal shock resistance. Recommended for tube and radiator sealing.

**908-19:**

Pourable, semi-rigid, very high strength, fast cure, epoxy structural adhesive and sealing compound. Good peel strength (18 pli) and toughness. Good hot strength and dielectric properties up to 130C. Recommended for metal, plastic and ceramic substrates.

**A-161:**

High peel strength (14 pli), heat curing, epoxy adhesive. Specially thickened to retard flow or "sag" during cure. Good toughness and resiliency. Excellent adhesion to plasticized PVC, neoprene and fiberglass reinforced plastics.

**EMERSON & CUMING, INC.: Adhesives: High Strength--TLS  
(Continued):****One Component Systems--Epoxy Based (Continued):****A-304:**

Pourable, fast heat curing, epoxy filter end cap adhesive. Excellent toughness and chemical resistance. Also recommended for coil potting and attaching ferrite magnets to metal support frame. Available in various colors and viscosities.

**A-359:**

Aluminum filled, heat curing, epoxy adhesive. Sag resistant. Exceptional thermal and chemical resistance. High hot strength. Used for replacing brazing in pipe and air conditioner tube assemblies.

**A-359-LV:**

Lower thixotropy version of A-359.

**A-410-05:**

High strength, aluminum filled, epoxy adhesive for bonding to most oily or other poorly prepared metal surfaces. Sag resistant. Excellent heat and chemical resistance. Recommended for bonding metal motor housing.

**A-451:**

Tough and resilient epoxy adhesive having excellent adhesion to plasticized PVC, neoprene and other elastomers. High peel strength (28 pli). Good vibration resistance.

**G-804-1:**

Unfilled, high peel strength (18 pli), thixotropic, epoxy structural adhesive. Excellent adhesion to aluminum. Flow modified to permit roller coat application for honeycomb bonding.

**G-909:**

High strength, thixotropic, flexible, epoxy adhesive. High peel strength (30 pli). Recommended for bonding copper, aluminum and fiberglass reinforced plastics. Good bonds to oily steel.

**EMERSON & CUMING INC.: Adhesives: High Temperature Performance:**

**One Component Systems--Epoxy Based:**

**2780-45:**

Filled, pourable, high temperature resistant, epoxy adhesive. Long term resistance to boiling glycol. Excellent thermal shock resistance. Recommended for tube and radiator sealing.

**281:**

Highly filled, thermally conductive, thixotropic, epoxy adhesive. Good thermal shock, electrical insulation and chemical resistance properties. Low coefficient of expansion. Recommended for bonding metals and ceramics in heat sink applications.

**A-359:**

Aluminum filled, heat curing, epoxy adhesive. Sag resistant. Exceptional thermal and chemical resistance. High hot strength. Used for replacing brazing in pipe and air conditioner tube assemblies.

**A-359-LV:**

Lower thixotropy version of A-359.

**A-401-37:**

Thixotropic, heat curing, epoxy structural adhesive designed for bonding to engineering plastics. Applications include bonding covers to housings on electronic equipment and sealing leads on switch assemblies.

**A-410-05:**

High strength, aluminum filled, epoxy adhesive for bonding to most oily or other poorly prepared metal surfaces. Sag resistant. Excellent heat and chemical resistance. Recommended for bonding metal motor housings.

**ME-845:**

One component, thermally conductive, heat curing, epoxy adhesive. Good hot strength. Recommended for chip bonding and assembly of electrical components. Lower viscosity version of ME-855.

**ME-855:**

One component, thermally conductive, heat curing, epoxy adhesive. Good hot strength. Recommended for chip bonding and assembly of electrical components.

**Two Component Systems--Epoxy Based:**

**104 A/B:**

Filled, heat curing, high temperature resistant, epoxy adhesive. Excellent chemical resistance. Maintains high shear strength up to 230C. Recommended for bonding metals, glass, ceramics and high temperature thermoset plastics.

**276:**

Highly filled, high temperature resistant, thermally conductive, epoxy adhesive and sealant. Requires heat cure. Excellent chemical resistance. Used for bonding metal, glass and ceramic substrates.

**EMERSON & CUMING, INC.: Adhesives: Low Temperature Performance:**

**One Component Systems-Epoxy Based:**

**930-09:**

Flexible, non-blushing, epoxy adhesive for glass headlamp bonding. Maintains flexibility at temperatures as low as -40C. Low volatility. Excellent humidity resistance.

**G-757:**

Very flexible, thixotropic, epoxy adhesive. Excellent low temperature resistance. Excellent adhesion to glass, steel, copper, aluminum and fiberglass reinforced plastics. Recommended for use in headlamp glass bonding.

**Two Component Systems--Epoxy Based:**

**24 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent impact resistance. Recommended for bonding glass, polystyrene, polysulfone, polycarbonate, rigid PVC and PVDC.

**27 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent performance under cryogenic conditions. Good impact and thermal shock resistance. Recommended for bonding glass and transparent plastics.

**285:**

Highly filled, thermally conductive, epoxy adhesive. Low shrinkage and coefficient of expansion. Used with a variety of curatives. Recommended for bonding metal and ceramic substrates in heat sink applications.

**286 A/B:**

Filled, general purpose, thermally conductive, epoxy adhesive. Room temperature cure. Convenient mix ratio. Recommended for a wide variety of maintenance and production applications. Ideal for use in piping applications involving metal and plastic pipe.



**EMERSON & CUMING, INC.: Adhesives: Surface Mount:**

**One Component Systems--Epoxy Based:**

**930-12-4:**

One component, epoxy based, surface mount adhesive. Low heat cure. Recommended use in pin transfer applicators without squeegee assist. Non-stringing with high green strength. Solder wave resistant and fluoresces under black light to facilitate board inspection. Available in cartridges.

**930-12-4F:**

One component, epoxy based, surface mount adhesive. Low heat cure. Recommended use in pin transfer applicators with squeegee assist. Higher viscosity version of 930-12-4. Non-stringing with high green strength. Solder wave resistant and fluoresces under black light to facilitate board inspection. Available in cartridges and syringes.

**CSM-933-65-1:**

One component, solvent containing, silver filled, thermoplastic based, surface mount adhesive. Excellent electrical conductivity (0.0005 ohm-cm). Good resistor push off strength (4-18 lb). Good thermal shock, fatigue, heat and humidity resistance. Excellent adhesion to tin, copper and most plastics.

**D-124F:**

One component, epoxy based, surface mount adhesive. Low heat cure. Recommended use with all pneumatic syringe dispense applicators. Non-stringing with high green strength to eliminate component skewing during handling and cure. Solder wave resistant and fluoresces under black light to facilitate board inspection. Optimal dot height for high profile components. Available in cartridges and syringes.

**D-124F-1RED:**

One component, epoxy based, surface mount adhesive. Low heat cure. Recommended use with all pneumatic syringe dispense applicators. Can also be stenciled and pin transferred in equipment with squeegee assist. Non-stringing with very high green strength to eliminate component skewing during handling and cure. Solder wave resistant and fluoresces under black light to facilitate board inspection. High thixotropic ratio optimizing the dot height for all high profile MELF and flat chip components. Available in cartridges and syringes.

**UV-330:**

One component, UV/heat curing, surface mount adhesive. Recommended for all pneumatic syringe dispense applicators. Good green strength to prevent component skewing before cure. Cured adhesive is wave solder resistant and fluoresces under black light. Available in cartridges and syringes.

**EMERSON & CUMING, INC.: Adhesives: Thermally Conductive:****One Component Systems-Epoxy Based:****281:**

Highly filled, thermally conductive, thixotropic, epoxy adhesive. Good thermal shock, electrical insulation and chemical resistance properties. Low coefficient of expansion. Recommended for bonding metals and ceramics in heat sink applications.

**A-401-12:**

Medium viscosity, thermally conductive, heat curing, epoxy structural adhesive. Excellent dielectric properties. Recommended for bonding metals, ceramics and engineering plastics.

**A-410-05:**

High strength, aluminum filled, epoxy adhesive for bonding to most oily or other poorly prepared metal surfaces. Sag resistant. Excellent heat and chemical resistance. Recommended for bonding metal motor housings.

**ME-845:**

One component, thermally conductive, heat curing, epoxy adhesive. Good hot strength. Recommended for chip bonding and assembly of electrical components. Lower viscosity version of ME-855.

**ME-855:**

One component, thermally conductive, heat curing, epoxy adhesive. Good hot strength. Recommended for chip bonding and assembly of electrical components.

**Two Component Systems--Epoxy Based:****276:**

Highly filled, high temperature resistant, thermally conductive, epoxy adhesive and sealant. Requires heat cure. Excellent chemical resistance. Used for bonding metal, glass and ceramic substrates.

**285:**

Highly filled, thermally conductive, epoxy adhesive. Low shrinkage and coefficient of expansion. Used with a variety of curatives. Recommended for bonding metal and ceramic substrates in heat sink applications.

**286 A/B:**

Filled, general purpose, thermally conductive, epoxy adhesive. Room temperature cure. Convenient mix ratio. Recommended for a wide variety of maintenance and production applications. Ideal for use in piping applications involving metal and plastic pipe.

**A-39:**

Aluminum filled, high strength, epoxy adhesive and tooling compound. Used with a variety of curatives. Yields tough, durable bonds to most metals.

**T-661 A/B:**

Highly filled, thermally conductive, epoxy adhesive. Easy-to-spread thixotropic paste. Low shrinkage and coefficient of expansion. Resists severe thermal cycling. Recommended for forming thermally conductive joints between heat sinks and power devices.

**EMERSON & CUMING, INC.: Adhesives: UV Curable:**

**One Component Systems--Epoxy Based:**

**UV-153:**

Soft, flexible (70A), UV curable adhesive. Good moisture resistance. Capable of deep section cures (>125 mil). Bonds well to aluminum, glass and flexible plastics. Used as a blob top or sealant.

**UV-300:**

Switch seal encapsulant and adhesive. Cures in thick and thin films by UV light and heat. Post cure needed for shadowed areas. Bonds well to glass, rigid plastics, and metals.

**UV-330:**

One component, UV/heat curing, surface mount adhesive. Recommended for all pneumatic syringe dispense applicators. Good green strength to prevent component skewing before cure. Cured adhesive is wave solder resistant and fluoresces under black light. Available in cartridges and syringes.

**UV-900:**

Clear, UV/heat curable encapsulant, dip coating or adhesive. Excellent adhesion to glass, metals, and plastics. Excellent thermal shock resistance. Good humidity and solvent resistance. 125 mil cure depth.

**UV-9001:**

UV/heat curable, insulative sealant or coating for small electronic devices. Thermal cycle and humidity resistance. Good adhesion to Ryton, Valox, Ultem and stainless steel.

**XUV-2321-15:**

Screen printable, UV curable, LCD glass and lead sealant. Good hot solder and humidity resistance.

**UV-2009:**

Flexible, UV curable adhesive and casting compound. Very high toughness and elongation. Good moisture resistance. Excellent adhesion to glass, metal and plastics. Moisture resistance.

**EMERSON & CUMING, INC.: Adhesives: Specialty:**

**Composite Bonding:**

**XT-5012-3 A/B:**

Two component, pourable, impact resistant, room temperature curing, epoxy structural adhesive. Color coded for ease of use. Excellent fatigue resistance. Bonds can be enhanced by post curing. Recommended for composite bonding of aluminum and fiberglass.

**Filter End Cap:**

**A-304:**

One component, pourable, fast heat curing, epoxy filter end cap adhesive. Excellent toughness and chemical resistance. Also recommended for coil potting and attaching ferrite magnets to metal support frames. Available in various colors and viscosities.

**A-316:**

One component, pourable, fast heat curing, epoxy adhesive. Exhibits excellent thermal stability and resistance to chemicals. Used as end cup adhesive for jet fuel and hydraulic oil filters. Available in a range of colors and viscosities.

**Lighting:**

**930-9:**

One component, flexible, non-blushing, epoxy adhesive for glass headlamp bonding. Maintains flexibility at temperatures as low as -40C. Low volatility. Excellent humidity resistance.

**D-271-6:**

One component, non-sag, fast heat curing, flexible epoxy adhesive. Designed for bonding ABS and other heat sensitive plastics. Good adhesive for glass and thin gauge metals. Recommended for bonding glass headlamps.

**G-757:**

One component, very flexible, thixotropic, epoxy adhesive. Excellent low temperature resistance. Excellent adhesion to glass, steel, copper, aluminum and fiberglass reinforced plastics. Recommended for bonding glass headlamps.

**LA-2337-8:**

One component, semi-flexible, thixotropic, fast heat curing, epoxy adhesive. Excellent adhesion to nylon and polycarbonate. Good thermal cycle resistance. Recommended for bonding plastic headlamps.

**EMERSON & CUMING, INC.: Adhesives: Specialty (Continued):**

**Lightweight:**

**SF-40 A/B:**

Two component, thixotropic, epoxy syntactic foam adhesive. Easily machineable. Room temperature cure. Suggested for use in aerospace and hydrospace applications where light weight is desirable.

**Needle Bonding:**

**1962-31:**

One component, medium viscosity, epoxy needle bonding adhesive. Designed to bond stainless steel cannulae into polypropylene hubs. Also, recommended as a filter end cap adhesive.

**927-10:**

One component, fast curing, epoxy adhesive for needle bonding with polypropylene hubs. Also recommended for bonding, sealing or insulating of heat sensitive parts. Available in a series of varying viscosities.

**928-69-4:**

One component, pourable, very low heat curing, epoxy adhesive. Yields tough, durable bonds to a variety of materials. Designed for use on temperature sensitive substrates.

**Adhesives for Ceramics:**

**One Component Systems--Epoxy Based:**

**281:**

Highly filled, thermally conductive, thixotropic, epoxy adhesive. Good thermal shock, electrical insulation and chemical resistance properties. Low coefficient of expansion. Recommended for bonding metals and ceramics in heat sink applications.

**A-401-12:**

Medium viscosity, thermally conductive, heat curing, epoxy structural adhesive. Excellent dielectric properties. Recommended for bonding metals, ceramics and engineering plastics.

**EMERSON & CUMING, INC.: Adhesives for Ceramics (Continued):****Two Component Systems--Epoxy Based:****104 A/B:**

Filled, heat curing, high temperature resistant, epoxy adhesive. Excellent chemical resistance. Maintains high shear strength up to 230C. Recommended for bonding metals, glass, ceramics and high temperature thermoset plastics.

**276:**

Highly filled, high temperature resistant, thermally conductive, epoxy adhesive and sealant. Requires heat cure. Excellent chemical resistance. Used for bonding metal, glass and ceramic substrates.

**285:**

Highly filled, thermally conductive, epoxy adhesive. Low shrinkage and coefficient of expansion. Used with a variety of curatives. Recommended for bonding metal and ceramic substrates in heat sink applications.

**T-661 A/B:**

Highly filled, thermally conductive, epoxy adhesive. Easy-to-spread thixotropic paste. Low shrinkage and coefficient of expansion. Resists severe thermal cycling. Recommended for forming thermally conductive joints between heat sinks and power devices.

**Adhesives for Glass:****One Component Systems--Epoxy Based:****D-271-6:**

Non-sag, fast heat curing, flexible, epoxy adhesive. Designed for bonding ABS and other heat sensitive plastics. Good adhesive for glass and thin gauge metals. Recommended for bonding glass headlamps.

**G-757:**

Very flexible, thixotropic, epoxy adhesive. Excellent low temperature resistance. Excellent adhesion to glass, steel, copper, aluminum and fiberglass reinforced plastics. Recommended for bonding glass headlamps.

**EMERSON & CUMING INC.: Adhesives For Glass (Continued):**

**Two Component Systems--Epoxy Based:**

**24 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent impact resistance. Recommended for bonding glass, polystyrene, polysulfone, polycarbonate, rigid PVC and PVDC.

**27 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent performance under cryogenic conditions. Good impact and thermal shock resistance. Recommended for bonding glass and transparent plastics.

**45:**

Filled, general purpose, room temperature curing, epoxy adhesive and sealant. Flexibility can be adjusted by the amount of Catalyst 15 used. Convenient mix ratio. Good impact resistance. Excellent adhesion to metal, glass, and plastic substrates.

**45 Clear:**

Clear, unfilled version of ECCOBOND 45.

**Adhesives for Plastics & Elastomers:**

**One Component Systems--Epoxy Based:**

**1962-31:**

Medium viscosity, epoxy based, needle bonding adhesive. Designed to bond stainless steel cannulae into polypropylene hubs. Also, recommended as a filter end cap adhesive.

**910-48:**

Rapid curing, medium viscosity, epoxy adhesive and sealing compound. Rigid. Recommended for needle bonding, sealing or insulating of heat sensitive parts.

**927-10:**

Fast curing, epoxy adhesive for needle bonding with polypropylene hubs. Also recommended for bonding, sealing or insulating of heat sensitive parts. Available in a series of varying viscosities.

**928-69-4:**

Pourable, very low heat curing, epoxy adhesive. Yields tough, durable bonds to a variety of materials. Designed for use on temperature sensitive substrates.

**EMERSON & CUMING, INC.: Adhesives for Plastics & Elastomers  
(Continued):****One Component Systems--Epoxy Based:****A-329:**

Fast heat curing, epoxy adhesive. Thickened to prevent flow or "sag" during heat cure. Good thermal stability and chemical resistance. Recommended for bonding molded phenolic parts, steel and aluminum.

**A-401-37:**

Thixotropic, heat curing, epoxy structural adhesive designed for bonding to engineering plastics. Applications include bonding covers to housings on electronic equipment and sealing leads on switch assemblies.

**A-451:**

Tough and resilient epoxy adhesive having excellent adhesion to plasticized PVC, neoprene and other elastomers. High peel strength (28 pli). Good vibration resistance.

**G-909:**

High strength, thixotropic, flexible, epoxy adhesive. High peel strength (30 pli). Recommended for bonding copper, aluminum and fiberglass reinforced plastics. Good bond to oily steel.

**Two Component Systems--Epoxy Based:****1760 A/B:**

Unfilled, low viscosity, room temperature curing, epoxy/urethane adhesive. Long working life. Convenient mix ratio. Exhibits excellent adhesion to flexible vinyl and neoprene substrates. Recommended for sealing vinyl insulated wire leads in sensors and control modules.

**24 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent impact resistance. Recommended for bonding glass, polystyrene, polysulfone, polycarbonate, rigid PVC and PVDC.

**27 A/B:**

Clear, low viscosity, room temperature curing, epoxy adhesive. Exhibits resilient bonds when joining dissimilar materials. Excellent performance under cryogenic conditions. Good impact and thermal shock resistance. Recommended for bonding glass and transparent plastics.



**EMERSON & CUMING, INC.: Adhesives for Plastics & Elastomers  
(Continued):**

**Two Component Systems-Epoxy Based (Continued):**

**286 A/B:**

Filled, general purpose, thermally conductive, epoxy adhesive. Room temperature cure. Convenient mix ratio. Recommended for a wide variety of maintenance and production applications. Ideal for use in piping applications involving metal and plastic pipe.

**45:**

Filled, general purpose, room temperature curing, epoxy adhesive and sealant. Flexibility can be adjusted by the amount of Catalyst 15 used. Convenient mix ratio. Good impact resistance. Excellent adhesion to metal, glass and plastic substrates.

**45 Clear:**

Clear, unfilled version of ECCOBOND 45.

**A-18:**

Unfilled, clear, high peel strength, epoxy adhesive. Retains its toughness, flexibility and elongated characteristics under extended service conditions. Recommended for bonding elastomers, metals, ceramics, and most plastics.

**T-530 A/B:**

Flexible, two component, thixotropic, epoxy adhesive. Room temperature cure. Excellent peel strength (25 lb/in). Color coded/convenient mix ratio. Recommended for bonding elastomers, metals, and most plastics.

**XT-2526 A/B:**

Filled, flexible, room temperature curing, epoxy adhesive for bonding vinyl substrates. Long working life (5 hrs). Color coded/convenient mix ratio. Also recommended for elastomeric, plastic and some metal substrates.

**EMERSON & CUMING, INC.: Encapsulants: General Purpose  
(Unfilled):**

**One Component Systems-Epoxy Based:**

**A-312:**

Unfilled, fast curing, low viscosity epoxy encapsulant. Excellent chemical, heat and moisture resistance. Recommended for small mass potting (<50 grams).

**D-272:**

Unfilled, semi-flexible epoxy encapsulant. Bonds well to vinyl and other plastics. Fast curing at temperatures below 100C. Recommended for small device potting.

**Two Component Systems-Epoxy Based:**

**A-14:**

Unfilled, general purpose epoxy encapsulating resin. Used with a variety of curatives. Used for surface coating, laminating, casting and potting of electrical devices. Various colors available.

**A-16:**

Unfilled, semi-flexible, general purpose epoxy encapsulant. Excellent toughness and peel strength in adhesive applications. Used with a variety of curatives.

**A-17:**

Unfilled, transparent, very low viscosity, general purpose epoxy encapsulating and impregnating resin. Used with a variety of hardeners. Low viscosity version of AMICON A-14.

**T-640 A/B:**

Unfilled, low viscosity, transparent, general purpose epoxy encapsulant for biomedical applications. Long pot life. Room temperature cure.

**EMERSON & CUMING INC.: Encapsulants: General Purpose (Filled):**

**Two Component Systems-Epoxy Based (Continued):**

**2651-40:**

Low viscosity version of STYCAST 2651. Used with a variety of curatives. Meets MIL-I-16923 cured with Catalyst 11. Available in colors.

**2741:**

Filled, room temperature curing epoxy potting and sealing resin. Flexibility can be adjusted by amount of Catalyst 15 used. Excellent adhesion to a wide variety of substrates.

**2741LV:**

Low viscosity version of STYCAST 2741.

**3180M A/B:**

Filled, low cost, general purpose epoxy encapsulant. Convenient 1:1 mix ratio by weight or volume. Room temperature cure. Excellent moisture resistance.

**A-24:**

Filled, general purpose, dielectric grade epoxy encapsulant. Used with a variety of curatives. Low coefficient of thermal expansion. Excellent all around potting compound.

**A-27:**

Low viscosity version of AMICON A-24.

**T-913 A/B:**

Filled, semi-rigid, abrasion resistant epoxy encapsulant. Used for potting and impregnating of coils and motors. Casting of large masses possible.

**XT-1169 A/B:**

Filled, heat curing, low viscosity encapsulant with good abrasion, thermal shock and impact resistance. Excellent for impregnation of small coils.

**XT-2555-1 A/B:**

Filled, rigid epoxy encapsulant. Heat cure. Excellent thermal shock and impact resistance. Excellent impregnation in small tightly wound coils. Excellent chemical resistance.

**EMERSON & CUMING INC.: Encapsulants: Low Viscosity:****One Component Systems-Epoxy Based:****910-54:**

Unfilled, semi-flexible, low viscosity impregnant for motors, coils and transformers. Low exotherm. Excellent thermal shock resistance. Ideal for large castings.

**E-151-3:**

Unfilled, low viscosity epoxy encapsulant and impregnant. Excellent thermal shock and impact resistance. Low exotherm. Various colors available. Excellent for impregnating tightly wound coils.

**E-152:**

Filled, low viscosity epoxy encapsulant and impregnant. Excellent thermal shock resistance. Low exotherm and shrinkage. Excellent for large motor, coil and transformer potting.

**E-565:**

Clear, low viscosity epoxy encapsulant. Low exotherm. Produces tough castings with good moisture and thermal shock resistance.

**W28G:**

Unfilled, high temperature resistant epoxy impregnant for transformers, coils and capacitors. Low viscosity at elevated temperature.

**Two Component Systems-Epoxy Based:****1207:**

Unfilled, low viscosity epoxy encapsulant and impregnant. High temperature resistance. Long pot life (12 hours at 25C). Excellent vacuum stability. Used to impregnate coils and windings.

**1217:**

Unfilled, low viscosity epoxy encapsulant and impregnant resin. Used with a variety of curatives. Excellent vacuum stability. Used to pot small coils and electrical devices.

**2057:**

Filled, low viscosity, vacuum grade epoxy encapsulating resin. Good air release. Used with a variety of curatives. Recommended for general purpose potting applications.

**2057FR:**

Filled, low viscosity, fire-resistant epoxy resin system. Meets UL94V-0 when cured with Catalyst 9 or 11. Good air release. Suitable for encapsulation or impregnation of closely packed devices.

**EMERSON & CUMING INC.: Encapsulants: Low Viscosity (Continued):**

**Two Component Systems-Epoxy Based (Continued):**

**3020:**

Highly filled, low viscosity, strippable epoxy encapsulating resin. Used with a variety of curatives. Good machinability. Good for general purpose potting and encapsulation.

**3050:**

Filled, very low viscosity, epoxy encapsulating resin. Used with a variety of curatives. Recommended for potting or impregnating small devices.

**T-663 A/B:**

Filled, low viscosity, room temperature curing epoxy encapsulant. Excellent adhesion to PVC and phenolics. High temperature performance for room cure system.

**W19:**

Unfilled, very low viscosity, epoxy impregnant. Used with a variety of curatives. Recommended for impregnating transformers, coils and small electronic components.

**W19-FR:**

Unfilled, very low viscosity, fire resistant epoxy impregnant. Meets UL94 V-1 when cured with Catalyst 9, V-0 when cured with Catalyst 11. Used to impregnate transformers, coils and motors.

**W67 A/B:**

Unfilled, low viscosity, heat curing epoxy impregnant. Excellent high temperature performance. Excellent electrical properties. Used for impregnating coils, transformers, chokes and solenoids.

**XT-1122 A/B:**

Unfilled, heat cured, flexible epoxy impregnant and encapsulant. Combination of heat resistance and toughness, shock and impact resistance. Low viscosity. Used for coil impregnation.

**EMERSON & CUMING INC.: Encapsulants: Low Temperature Performance:**

**Two Component Systems-Epoxy Based:**

**1267 A/B:**

Clear, low cost, room temperature curing, low viscosity epoxy casting compound. Excellent cryogenic performance. Good impact and thermal shock resistance. Used for display embedments and bonding glass lenses.

**2754DK A/B:**

Filled, flexible, thermally conductive epoxy encapsulating resin system. Exerts low stress on delicate components. Good low temperature performance and impact resistance. Excellent thermal cycle/shock resistance.

**EMERSON & CUMING INC.: Encapsulants: High Temperature Performance:**

**One Component Systems-Epoxy Based:**

**906-9:**

Filled, high temperature resistant epoxy encapsulant. Good chemical and thermal shock resistance. Excellent adhesion to stainless steel. High reliability end cap sealant.

**925-13:**

Filled, high temperature performance epoxy encapsulant. Good chemical and thermal shock resistance. Lower viscosity version of UNISSET 925-12.

**EFF-14:**

High temperature resistant, syntactic foam powder. Low outgassing. Low exotherm. Repairable. Used in aerospace applications for potting electronic modules.

**G-508J:**

Filled, heat curing, fire-resistant epoxy encapsulant. High gloss. Good chemical resistance. Good high temperature performance. Meets UL94 V-O. Recommended for small device potting.

**W28G:**

Unfilled, high temperature resistant epoxy impregnant for transformers, coils and capacitors. Low viscosity at elevated temperature.

**Two Component Systems-Epoxy Based:**

**1207:**

Unfilled, low viscosity epoxy encapsulant and impregnant. High temperature resistance. Long pot life (12 hours at 25C). Excellent vacuum stability. Used to impregnate coils and windings.

**2662:**

Filled, high temperature resistant epoxy encapsulating resin. Heat cure. Outstanding chemical and moisture resistance.

**2742 A/B:**

Filled, thermally conductive, heat curing epoxy encapsulating resin system. Excellent high temperature resistance. Long pot life (24 hours at 25C). Used for potting power supplies or casting heat sinks.

**2762FT:**

Highly filled, high temperature resistant, thermally conductive epoxy encapsulating resin. Heat cure. Low shrinkage. Excellent chemical resistance. Used for high temperature, high voltage potting.

**W66:**

Unfilled, medium viscosity epoxy impregnant and casting resin. Excellent high temperature resistance. Excellent chemical resistance.

**W67A/B:**

Unfilled, low viscosity, heat curing epoxy impregnant. Excellent high temperature performance. Excellent electrical properties. Used for impregnating coils, transformers, chokes and solenoids.

**EMERSON & CUMING INC.: Encapsulants: Dispensable:**

**One Component System-Epoxy Based:**

**2651MM-1:**

Filled, low viscosity, general purpose epoxy encapsulant. Good machineability. Properties similar to STYCAST 2651MM cured with Catalyst 11. Recommended for small device potting.

**906-9:**

Filled, high temperature resistant epoxy encapsulant. Good chemical and thermal shock resistance. Excellent adhesion to stainless steel. High reliability end cap sealant.

**925-13:**

Filled, high temperature performance epoxy encapsulant. Good chemical and thermal shock resistance. Lower viscosity version of UNISSET 925-12.

**E-131:**

Filled, semi-flexible epoxy encapsulant and impregnant. Good thermal shock resistance. Used for large motor, coil and transformer encapsulation.

**E-152:**

Filled, low viscosity, epoxy encapsulant and impregnant. Excellent thermal shock resistance. Low exotherm and shrinkage. Excellent for large motor, coil and transformer potting.

**Two Component Systems-Epoxy Based:**

**2058 A/B:**

Filled, low viscosity, fiberglass reinforced, epoxy casting and encapsulating resin system. Room temperature cure. Excellent impact and thermal shock resistance. Ideal for use in thin section potting applications.

**2072 A/B:**

Filled, low viscosity, easily dispensable epoxy encapsulant. Low cost. Convenient mix ratio. Used for general purpose potting applications.

**2075 A/B:**

Filled, high gloss potting and encapsulating resin system. Low viscosity. Low cost. Good air release properties. Designed for use in meter/mix dispensing equipment.



**EMERSON & CUMING INC.: Encapsulants: Dispensable (Continued):**

**Two Component Systems-Epoxy Based (Continued):**

**2651MM:**

Low viscosity, highly machineable version of STYCAST 2651. Used with a variety of curatives. Can be easily meter/mix dispensed. Available in colors.

**2741LV:**

Filled, room temperature curing potting and sealing resin. Flexibility can be adjusted by amount of Catalyst 15LV used. Excellent adhesion to a wide variety of substrates. Low viscosity version of STYCAST 2741.

**3180M A/B:**

Filled, low cost, general purpose encapsulant. Convenient 1:1 mix ratio by weight or volume. Room temperature cure. Excellent moisture resistance.

**XT-1169 A/B:**

Filled, heat curing, low viscosity encapsulant with good abrasion, thermal shock and impact resistance. Excellent for impregnation of small coils.

**EMERSON & CUMING INC.: Encapsulants: Fire Resistant:****One Component Systems-Epoxy Based:****G-508-1:**

Filled, heat curing, fire-resistant epoxy encapsulant. High gloss. Good chemical resistance. Good high temperature performance. Meets UL 94 V-O. Recommended for small device potting.

**Two Component Systems-Epoxy Based:****2057FR:**

Filled, low viscosity, fire-resistant epoxy resin system. Meets UL94 V-O when cured with Catalyst 9 or 11. Good air release. Suitable for encapsulation or impregnation of closely packed devices.

**2630FR A/B:**

Filled, low viscosity, high gloss, fire-resistant epoxy potting compound. Room temperature cure. Easily dispensable (5:1 mix ratio). Meets UL94 V-O. Used for potting relays.

**2651-40FR:**

Filled, fire-resistant version of STYCAST 2651-40. Meets UL-94 V-O when cured with Catalyst 9 or 11. Excellent dielectric properties. Good choice for general purpose potting of electrical devices.

**2850FT-FR:**

Filled, fire-resistant version of STYCAST 2850FT. Good heat transfer. Meets UL94 V-O when cured with Catalyst 9 or 11. Low coefficient of thermal expansion and shrinkage. High voltage applications.

**W19-FR:**

Unfilled, very low viscosity, fire-resistant epoxy impregnant. Meets UL94 V-1 when cured with Catalyst 9, V-O when cured with Catalyst 11. Used to impregnate transformers, coils and motors.

**XT-1168-1A:**

Highly filled, fire-resistant epoxy casting resin. Low exotherm, coefficient of thermal expansion and shrinkage. Meets UL94 V-O when cured with Hardener B-71.

**XT-4064-3A:**

Filled, fast curing, fire-resistant epoxy encapsulant. Good resistance to moisture and organic solvents. Meets UL94 V-O when cured with Hardener B-100. Used for general purpose potting.

**XT-5038-6A:**

Filled, low viscosity, fire-resistant epoxy encapsulant. Fast air release. Good dielectric properties. Meets UL94 V-O when cured with Hardener B-100. Used for potting capacitors and small devices.

**EMERSON & CUMING INC.: Encapsulants: Lightweight:**

**One Component Systems-Epoxy Based:**

**EFF-14:**

Color: Yellow

Mixed Viscosity cps @ 25C: Powder

Cure Schedule: 16 hr @ 80C or 4 hr @ 110C or 2 hr @ 140C  
or 1 hr @ 180C

Temperature Range of Use: -65 to +175C

High temperature resistant, syntactic foam powder. Low out-gassing. Low exotherm. Repairable. Used in aerospace applications for potting electronic modules.

**Two Component Systems-Epoxy Based:**

**1090:**

Color: Black

Mix Ratio A:B: Varies with Curative

Mixed Viscosity, cps @ 25C: 135,000

Specific Gravity @ 25C: 0.78

Shore Hardness: 82D

Epoxy, syntactic foam casting resin. Low shrinkage and coefficient of thermal expansion. Low dielectric constant for minimal effect on circuit operation. Used in airborne embedment applications.

**1090SI:**

Color: Black

Mix Ratio A:B: 100:23 (Cat 24LV)

Mixed Viscosity, cps @ 25C: 40,000

Specific Gravity @ 25C: 0.70

Cure Schedule: 24 hr @ 25C or 2 hr @ 65C

Shore Hardness: 80D

Temperature Range of Use: -65 to +105C

Lower density, lower viscosity version of STYCAST 1090. Recommended for use with Catalyst 24LV. Excellent impact resistance. Low dielectric constant.

**EMERSON & CUMING INC.: Encapsulants: Optically Clear:**

**One Component System-Epoxy Based:**

**E-565:**

Clear, low viscosity epoxy encapsulant. Low exotherm. Produces tough castings with good moisture and thermal shock resistance.

**Two Component Systems-Epoxy Based:**

**1264 A/B:**

Transparent, high impact, low viscosity, room temperature curing, epoxy casting compound. Good thermal shock resistance. Low exotherm and embedment stress. Ideal for large mass castings requiring visibility.

**1267 A/B:**

Clear, low cost, low viscosity, room temperature curing, casting compound. Excellent cryogenic performance. Good impact and thermal shock resistance. Used for display embedments and bonding glass lenses.

**1269A A/B:**

Crystal clear, heat curing epoxy casting compound. Well suited for optical applications. No discoloration at temperatures up to 120C. Used for encapsulation of LEDs or casting optical lenses and prisms.

**1365 Series:**

Series of epoxy resins which cure into clear, transparent gels of varying hardnesses. Long pot life. Low exotherm. Excellent shock resistance and damping. Low embedment stress. Repairable.

**T-674 A/B:**

Clear, high strength, general purpose epoxy encapsulant. Long pot life (5 hr @ 25C). Semi-flexible. Designed for biomedical applications.

**XT-5156-9 A/B:**

Clear, low viscosity, high gloss epoxy encapsulant. Room temperature cure. Good scratch and wear resistance. Used for decorative inlay casting. Available in range of colors.

**EMERSON & CUMING INC.: Encapsulants: Thermally Conductive:**

**One Component Systems-Epoxy Based:**

**2851FT:**

Highly filled, high thermal conductivity epoxy encapsulant. Good high temperature and pressure cooker resistance. Recommended for use in high voltage applications.

**2851KT:**

Very highly filled, highest thermal conductivity epoxy encapsulant. Very gritty consistency. Excellent for casting of simple shapes and heat sinks.

**2851MT:**

Highly filled, very high thermal conductivity epoxy encapsulant. Gritty consistency. Used for potting rectifiers or casting heat sinks.

**906-9:**

Filled, high temperature resistance epoxy encapsulant. Good chemical and thermal shock resistance. Excellent adhesion to stainless steel. High reliability end cap sealant.

**Two Component Systems-Epoxy Based:**

**1495:**

Highly filled, medium viscosity, general purpose epoxy encapsulating resin. Low cost. Good thermal conductivity. Used with a variety of hardeners. Good choice for transformer encapsulation.

**2742 A/B:**

Filled, thermally conductive, heat curing, epoxy encapsulating resin system. Excellent high temperature resistance. Long pot life (24 hours at 25C). Used for potting power supplies or casting heat sinks.

**2754DK A/B:**

Filled, flexible, thermally conductive, epoxy encapsulating resin system. Exerts low stress on delicate components. Good low temperature performance and impact resistance. Excellent thermal cycle/shock resistance.

**2762FT:**

Highly filled, high temperature resistant, thermally conductive epoxy encapsulating resin. Heat cure. Low shrinkage. Excellent chemical resistance. Use for high temperature, high voltage device potting.

**EMERSON & CUMING INC.: Encapsulants: Thermally Conductive  
(Continued):**

**Two Component Systems-Epoxy Based (Continued):**

**2850FT:**

Highly filled, thermally conductive, epoxy encapsulating resin. Low shrinkage and coefficient of expansion. Used with a variety of curatives. Recommended for use in high voltage power supplies, bushings and transformers.

**2850FT-FR:**

Fire resistant version of STYCAST 2850FT. Good heat transfer. Meets UL94 V-0 when cured with Catalyst 9 or 11. Low coefficient of thermal expansion and shrinkage. High voltage applications.

**2850KT:**

Very highly filled, highest thermal conductivity, epoxy encapsulating resin. Very gritty consistency. Used with a variety of curatives. Recommended for casting heat sinks.

**2850MT:**

Highly filled, very high thermal conductivity, epoxy encapsulating resin. Gritty consistency. Used with a variety of curatives. Recommended for potting electrical devices where temperature rise must be controlled.

**A-25:**

Higher filled version of AMICON A-24. Good thermal conductivity. Low shrinkage. Used with a variety of curatives.

**EMERSON & CUMING INC.: Encapsulants: Specialty:**

**Two Component Systems-Epoxy Based:**

**1365 Series:**

Color: Clear

Mix Ratio A:B: 100:100

Mixed Viscosity, cps @ 25C: 100-600

Specific Gravity @ 25C: 0.99-1.06

Cure Schedule: 24 hr @ 45C or 8 hr @ 65C or 2 hr @ 100C

Series of epoxy resins which cure into clear, transparent gels of varying hardnesses. Long pot life. Low exotherm.

Excellent shock resistance and damping. Low embedment stress. Repairable.

**2760 A/B:**

Color: Black

Mix Ratio A:B: 100:50

Mixed Viscosity, cps @ 25C: 18,000

Specific Gravity @ 25C: 1.55

Cure Schedule: 48 hr @ 25C or 4 hr @ 65C or 2 hr @ 100C

Filled, room temperature curing, epoxy/urethane potting compound. Designed for excellent adhesion to vinyl substrates.

Recommended for potting components containing vinyl insulated wire or cable.

**3020SC:**

Color: Maroon

Mix Ratio A:B: Varies with Curative

Mixed Viscosity, cps @ 25C: Thixotropic Paste

Specific Gravity @ 25C: 1.76

Thixotropic version of STYCAST 3020. Used in silicon slicing applications or as a dip coat for electronic components. Used with a variety of curatives.

**Aluminum:**

Color: Grey

Mix Ratio A:B: Varies with Curative

Mixed Viscosity, cps @ 25C: 105,000

Specific Gravity @ 25C: 1.69

Aluminum filled, general purpose epoxy casting and tooling resin. Used with a variety of curatives. Recommended for casting rigid molds or for the repair of aluminum molds.

**FEL-PRO INC.: Elevated Temperature Cure Epoxy Systems:**

**Resin Number: 173:**

Hardener Number: 179

Type: Unfilled

Mixed Viscosity cps @ 77F: 500

Excellent thin film cure, very long working life

**Resin Number: 012:**

Hardener Number: 179

Type: Unfilled

Mixed Viscosity cps @ 77F: 700

Softer version of 173/179, lower stress on components

**Resin Number: 225:**

Hardener Number: 010

Flame Retardant System

Type: Filled

Mixed Viscosity cps @ 77F: 1,800

Flame retardant, UL-94V-0 recognized component

**Resin Number: 024:**

Hardener Number: 027

Type: Unfilled

Mixed Viscosity cps @ 77F: 2,000

Unfilled version of 148/027, complete impregnation

**Resin Number: 148:**

Hardener Number: 010

Type: Filled

Recommended System

Mixed Viscosity cps @ 77F: 5,000

General purpose potting and encapsulation, low viscosity

**Resin Number: 162:**

Hardener Number: 027

Type: Filled

Mixed Viscosity cps @ 77F: 5,000

MIL-I-16923G QPL listed, low viscosity, resilient

**Resin Number: 148:**

Hardener Number: 027

Type: Filled

Mixed Viscosity cps @ 77F: 6,000

MIL-I-16923G QPL listed, high performance system

**Resin Number: 148:**

Hardener Number: 022

Type: Filled

Mixed Viscosity cps @ 77F: 12,000

Softer version of 148/027, higher elongation

**Resin Number: 198:**

Hardener Number: 027

Thermally Conductive System

Type: Filled

Mixed Viscosity cps @ 77F: 30,000

Highest thermal conductivity, based on 148/027



**FEL-PRO INC.: Engineered Adhesives:****024/024:**

Very fast cure epoxy adhesive for bonding small components and high production rates; 5 minute gel time; mix 1 to 1 by volume; resilient, high shear strength--available as a 15 minute gel version (024/254) and thixotropic version (257/238).

**086/143:**

Unique, fiberglass-filled epoxy adhesive for bonding dissimilar substrates; provides high impact strength and crack resistance; mix 1 to 1 by volume; brushable consistency; 15 minute working time.

**133/030:**

High strength epoxy adhesive for filament winding and FRP laminations; outstanding chemical and moisture resistance; low viscosity; insures complete wet out; 25 minute gel time; mix 5:1 by weight.

**270/038:**

Proven epoxy adhesive for bonding filter end caps; can be cured quickly on platen heaters or slowly at ambient temperatures; long gel time at room temperature; mix 3.2 to 1 by volume; controlled thixotropy for minimum wicking; resistant to phosphate esters.

**9831:**

Thixotropic, one component epoxy adhesive formulated to be "non-sag" at cure temperatures; fast cure at 300F; ideal for bonding filter end caps or staking applications requiring controlled flow.

**9871:**

Unfilled, one component epoxy adhesive with outstanding bond strength; low viscosity at elevated temperatures allows complete impregnation, fast gel time at cure temperatures--available as a thixotropic version (9701).

**9956:**

Aluminum-filled, one component epoxy adhesive, thixotropic paste consistency, non-sag up to 350F; outstanding impact strength and adhesion--available as an unfilled version (9696) and a non-metallic filled version (9704).

**FEL-PRO INC.: One Component Epoxy Systems:**

9700:

UL Recognized Component

Type: Unfilled

Mixed Viscosity cps @ 77F: 300

UL recognized insulating resin, excellent impregnation

9778:

Type: Unfilled

Mixed Viscosity cps @ 77F: 300

Thermal shock and crack resistant, very low viscosity

9877:

Type: Unfilled

Mixed Viscosity cps @ 77F: 500

High mechanical strength, low viscosity

9886:

UL Recognized Component

Mixed Viscosity cps @ 77F: 800

UL recognized insulating resin, excellent electrical

properties

9733:

Type: Filled

Mixed Viscosity cps @ 77F: 1,900

Repairable potting compound, high temperature stability

9706:

UL Recognized Component

Type: Filled

Mixed Viscosity cps @ 77F: 5,500

UL recognized insulating resin, filled version of 9700

9772:

Recommended system

Type: Filled

Mixed Viscosity cps @ 77F: 6,000

General purpose potting and encapsulation, short cure cycle

9758:

UL Recognized Component

Type: Filled

Mixed Viscosity cps @ 77F: 8,000

UL recognized insulating resin, excellent mechanical strength

9709:

Type: Filled

Mixed Viscosity cps @ 77F: 15,000

Superior thermal shock and crack resistance, reinforcing

filler

9841:

Type: Filled

Mixed Viscosity cps @ 77F: 25,000

Thixotropic dip coat, applies 20 mils in one coat

9950:

Type: Filled

Mixed Viscosity cps @ 77F: 90,000

Very fast, low temperature cure; ideal for small parts

**FEL-PRO INC.: Room Temperature Cure Epoxy Systems:****Resin Number: 014:**

Hardener Number: 012

Type: Unfilled

Mixed Viscosity cps @ 77F: 350

Lowest viscosity, ideal for sand impregnation

**Resin Number: 207:**

Hardener Number: 053

Type: Filled

Mixed Viscosity cps @ 77F: 1,500

Very low viscosity, excellent impregnation

**Resin Number: 013:**

Hardener Number: 053

Type: Filled

Mixed Viscosity cps @ 77F: 3,000

Low viscosity, medium gel time

**Resin Number: 013:**

Hardener Number: 012

Recommended System

Type: Filled

Mixed Viscosity cps @ 77F: 3,800

Most versatile system, excellent dimensional stability

**Resin Number: 013:**

Hardener Number: 206

Type: Filled

Mixed Viscosity cps @ 77F: 5,500

Fastest gel time, ideal for small components

**Resin Number: 282:**

Hardener Number: 260

Type: Filled

Mixed Viscosity cps @ 77F: 5,600

Longest gel time, thermal shock and impact resistance

**Resin Number: 225:**

Hardener Number: 012

Flame Retardant System

Type: Filled

Mixed Viscosity cps @ 77F: 5,800

Flame retardant, UL 94V-0 recognized component

**FEL-PRO INC.: Room Temperature Cure Epoxy Systems (Continued):**

**Resin Number: 013:**

Hardener Number: 162

Type: Filled

Mixed Viscosity cps @ 77F: 6,000

Thermal shock resistant, good thermal conductivity

**Resin Number: 040:**

Hardener Number: 043

Type: Unfilled

Mixed Viscosity cps @ 77F: 6,600

Excellent moisture resistance, high resiliency

**Resin Number: 207:**

Hardener Number: 161

Type: Filled

Mixed Viscosity cps @ 77F: 9,000

Easy handling, mixes 1 to 1 by weight or volume

**Resin Number: 050:**

Hardener Number: 054

Type: Filled

Mixed Viscosity cps @ 77F: 24,000

Thermal shock resistant, filled version of 040/043

**Resin Number: 198:**

Hardener Number: 053

Thermally Conductive System

Type: Filled

Mixed Viscosity cps @ 77F: 25,000

Highest thermal conductivity, pourable viscosity

**Resin Number: 072:**

Hardener Number: 075

Type: Filled

Mixed Viscosity cps @ 77F: Thixotropic

Smooth, "butter-on" consistency, non-sag up to 150F

**FIBER-RESIN CORP.: Casting Systems:****FR-44/5413C:**

Mix Ratio By Weight: 100/5  
Pot Life: 50-60 minutes  
Viscosity cps, Mixed: 13,500  
Non-stain, R.T. cure, for 300F service, grey

**FR-44/5595:**

Mix Ratio by Weight: 100/7  
Pot Life: 90-150 minutes  
Viscosity cps, Mixed: 11,000  
Longer pot life, R.T. cure, for 350F service, grey

**FR-5309-MOS/558D:**

Mix Ratio by Weight: 100/20  
Pot Life: 90 minutes  
Viscosity cps, Mixed: 3,600  
Variety of hardeners and fillers also available

**FR-5312/5235M:**

Mix Ratio by Weight: 100/8  
Pot Life: 55 minutes  
Viscosity cps, Mixed: 3,500-4,500  
General purpose, high impact resistance

**FR-1188 A/B Hardcast:**

Mix Ratio by Weight: 1/1 weight or volume  
Pot Life: 4-6 minutes  
Viscosity cps, Mixed: 12,500-15,000  
Fast duplication of patterns and parts

**PROCAST 30:**

Mix Ratio by Weight: 1/1 weight or volume  
Pot Life: 4-6 minutes  
Viscosity cps, Mixed: Pourable  
Aluminum filled, excellent machinability

**FR-1177:****PROCAST 10:**

Mix Ratio by Weight: 1/1 weight or volume  
Pot life: 4-6 minutes  
Viscosity cps, Mixed: Pourable  
Hard, tough, fast setting

**FIBER-RESIN CORP.: Casting Systems (Continued):**

**FR-D-80:**

Mix Ratio by Weight: 1/1 weight  
Pot Life: 15-20 minutes  
Viscosity cps, Mixed: Pourable  
Unique urethane compound

**FR-A-90:**

Mix Ratio by Weight: 100/58  
Pot Life: 35 minutes  
Viscosity cps, Mixed: 3,100  
100% solids, urethane casting resin

**FR-1144:**

Mix Ratio by Weight: 1/1 weight or volume  
Pot Life: 85 seconds  
Viscosity cps, Mixed: Pourable  
Unfilled, fast setting

**FR-1133:**

Mix Ratio by Weight: 1/1 weight or volume  
Pot Life: 4 minutes  
Viscosity cps, Mixed: Pourable  
Longer worklife, higher strength and hardness

**FR-8503:**

Mix Ratio by Weight: 100/30  
Pot Life: 25-35 minutes  
Viscosity cps, Mixed: 25,000  
Universal adhesive, high peel strength bond

**FIBER-RESIN CORP.: Epoxy and Urethane Liquid Adhesives:****Fastener Potting and Honeycomb Core-Fill Compounds:****SLE-3009:**

Mix Ratio PBW: 100/25

Pot Life Minutes: 30-5

Viscosity cps: Extrudable

Key Features: Fastener potting compounds, high strength call out for SHUR LOK

**SLE-3010:**

Mix Ratio PBW: 100/8

Pot Life Minutes: 20-25

Viscosity cps: Soft Paste

Key Features: Fastener potting compounds., low weight call out for SHUR LOK

**SLE 3012:**

Mix Ratio PBW: 1/1 by volume

Pot Life Minutes: 35-45

Viscosity cps: Soft Paste

Key Features: Fastener potting compounds, non-flow call out for SHUR LOK

**FR-337/37:**

Mix Ratio PBW: 2/1

Pot Life Minutes: 35-45

Viscosity cps: 35,000-65,000

Key Features: High density to achieve high strength

**FR-338/38:**

Mix Ratio PBW: 2/1

Pot Life Minutes: 20-30

Viscosity cps: Paste

Key Features: High density to achieve high strength

**FR-7026 A/B:**

Mix Ratio PBW: 100/10

Pot Life Minutes: 20-30

Viscosity cps: Non-sag

**FR-7162 A/B:**

Mix Ratio PBW: 100/40

Pot Life Minutes: 90

Viscosity cps: 15,000-20,000

**FR-7176 A/B:**

Mix Ratio PBW: 100/15

Pot Life Minutes: 12-25

Viscosity cps: Extrudable

Key Features: Corefill compounds with a variety of densities, work lives, and viscosities.

**FIBER-RESIN CORP.: Epoxy and Urethane Liquid Adhesives  
(Continued):**

**Fastener Potting and Honeycomb Core-Fill Compounds (Continued):**

**FR-7180 A/B:**

Mix Ratio PBW: 100/25  
Pot Life Minutes: 65-75  
Viscosity cps: Pourable

**FR-8136-W A/B:**

Mix Ratio PBW: 100/50  
Pot Life Minutes: 60  
Viscosity cps: Non-sag  
Key Features: Corefill compounds with a variety of densities, work lives, and viscosities.

**Liquid and Paste Shim Compounds and Adhesives:**

**FR-55-9:**

Mix Ratio PBW: One component  
Color: Amber  
Viscosity cps, Mixed: 60,000-80,000  
Key Features: One component for metal-to-metal

**FR-1272 A/B:**

Mix Ratio PBW: 3/1 by volume  
Color: Tan  
Viscosity: non-sag  
Key Features: High compressive, medium temp adhesive and shim

**FR-7015 A/B:**

Mix Ratio PBW: 100/70  
Color: Off-white  
Viscosity: pourable  
Key Features: Self-extinguishing

**FR-7016 A/B:**

Mix Ratio PBW: 100/70  
Color: Off-white  
Viscosity: Semi-Paste  
Key Features: Self-extinguishing

**FR 7020 A/B:**

Mix Ratio PBW: 100/58  
Color: Black  
Viscosity cps, Mixed: 20,000  
Key Features: For field repair of composite, refer to Air Force Document



**FIBER-RESIN CORP.: Epoxy and Urethane Liquid Adhesives  
(Continued):****Liquid and Paste Shim Compounds and Adhesives (Continued):****FR-7118 A/B:**

Mix Ratio PBW: 1/1 by volume

Color: Off-white

Viscosity cps, Mixed: Paste

Key Features: Best general purpose for many metals and plastics

**FR-7142:**

Mix Ratio PBW: 2/3

Color: Grey

Viscosity cps, Mixed: 55,000

Key Features: General purpose, flexible, excellent bonds to galvanized metal

**FR-7184 A/B:**

Mix Ratio PBW: 1/1 by volume

Color: Black

Viscosity cps, Mixed: Semi-Paste

Key Features: Good adhesion to a variety of metals and plastics

**FR-7010 A/B:**

Mix Ratio PBW: 100/37

Pot Life at R.T.: 2 hours

Viscosity cps: Paste

Key Features: Good metal bonding epoxy adhesive

**FR-7021 A/B:**

Mix Ratio PBW: 100/37

Pot Life at R.T.: 120 minutes

Viscosity cps: Paste

Key Features: High Compressive Strength

**FR-12/HN-5:**

Mix Ratio PBW: 100/8

Pot Life at R.T.: 25-35 minutes

Viscosity cps: Paste

Key Features: Non-sag, excellent machinability

**FR-12/HN-6:**

Mix Ratio PBW: 100/7

Pot Life at R.T.: &gt;2 hours

Viscosity cps: Paste

Key Features: Non-sag, good machinability

**FIBER-RESIN CORP.: Epoxy and Urethane Liquid Adhesives  
(Continued):**

**Liquid and Paste Shim Compounds and Adhesives (Continued):**

**FR-7332 A/B:**

Mix Ratio PBW: 100/70  
Pot Life at R.T.: 30-35 minutes  
Viscosity cps: 20,000-30,000  
Key Features: High bond strength, good flexibility

**FR-14/HN-5:**

Mix Ratio PBW: 100/7  
Pot Life at R.T.: 35-45 minutes  
Viscosity cps: Pourable  
Key Features: Aluminum filled, pourable, high strength

**FR-14/HN-6:**

Mix Ratio PBW: 100/9  
Pot Life at R.T.: >2 hrs  
Viscosity cps: Pourable  
Key Features: Aluminum filled, pourable, high strength

**FR-5312S/5413C:**

Mix Ratio PBW: 100/8  
Pot Life at R.T.: 30 minutes  
Viscosity cps: Non-sag Paste  
Key Features: High temperature, non-sag

**FR-5458 A/B:**

Mix Ratio PBW: 1/1  
Pot Life at R.T.: 20 minutes  
Viscosity cps: Non-sag Paste  
Key Features: Fast Cure

**FR-8503:**

Mix Ratio PBW: 100/30  
Pot Life at R.T.: 25-35 minutes  
Viscosity cps: 25,000  
Key Features: Good adhesion to a variety of substrates

**FIBER-RESIN CORP.: Epoxy and Urethane Liquid Adhesives  
(Continued):**

**Electrical Potting and Impregnating Compounds:**

**FR-7204:**

Mix Ratio: 1/1  
 Mixed Viscosity cps: 10,000 @ R.T.  
 Pot Life at R.T.: 65 min.  
 Cure Schedule: 24 hrs @ R.T.  
 Hardness Shore D: 80  
 Tensile Strength psi: 8,500  
 Specific Gravity: 1.67  
 Compressive Strength psi: 8,000  
 Dielectric Strength: 400 volts/mils  
 Dielectric Constant: 80 at 100Hz  
 Dissipation Factor: 0.022 at 100Hz  
 Volume Resistivity:  $1 \times 10^{15}$  (Ohms-cm)  
 Recommended for potting transformers, electrical components  
 and products that require mass casting with a low heat rise.

**FR-7212:**

Mix Ratio: 100/50  
 Mixed Viscosity cps: 500 @ R.T.  
 Pot Life at R.T.: 2-3 hours  
 Cure Schedule: 16 hrs @ R.T.  
 Hardness Shore D: 75  
 Tensile Strength psi: 7,600  
 Specific Gravity: 1.05  
 Dielectric Constant: 3.8 at 1 MHz  
 Dissipation Factor: .025 at 1 MC  
 Volume Resistivity:  $7 \times 10^{14}$  (ohms-cm)  
 Excellent bubble release and thermal shock resistance;  
 injectable through a hypodermic needle.

**FR-8062-B:**

Mix Ratio: 1 component  
 Mixed Viscosity cps: Paste  
 Pot Life @ R.T.: 30-40 min. at 250F  
 Cure Schedule: 4 hrs at 195F + 4 hrs at 265F  
 Hardness Shore D: 83-86  
 Specific Gravity: 1.68  
 Compressive Strength psi: 13,640  
 Dielectric Constant: 3.5 at 1 MHz  
 High impact strength and good electrical resistance. Wet  
 layup for impregnating electrical coils in electromagnets.

**FIBER-RESIN CORP.: Epoxy Surface Coats:**

**R-5419S/540A:**

Mix Ratio by Weight: 100/13  
Pot Life: 20 minutes  
Viscosity cps, Mixed: Paste  
Specific Gravity, Mixed: 1.70  
Hardness Shore D: 85  
General purpose, white

**FR-5711A/B:**

Mix Ratio by Weight: 100/20  
Pot life: 15-20 minutes  
Viscosity cps, Mixed: Paste  
Specific Gravity, Mixed: 1.44  
Hardness Shore D: 88  
Not sensitive to moisture for plastic faced plaster

**FR-47/5413C:**

Mix Ratio by Weight: 100/6  
Pot Life: 30-40 minutes  
Viscosity cps, Mixed: Paste  
Specific Gravity, Mixed: 2.00  
Hardness Shore D: 88-90  
Surface coat, no cracking, R.T. set for 350F use

**FR-3414A/5595:**

Mix Ratio by Weight: 100/8  
Pot life: 30-40 minutes  
Viscosity cps, Mixed: Paste  
Hardness Shore D: 88-91  
Maximum in abrasion resistance

**FR-7132 A/B:**

Mix Ratio by Weight: 100/20  
Pot Life: 25-30 minutes  
Viscosity cps, Mixed: Semi-Pourable  
Specific Gravity, Mixed: 1.21  
Hardness Shore D: 85  
Self extinguishing

**FR-8628:**

Mix Ratio by Weight: 100/45  
Pot Life: 4-6 hours  
Viscosity cps, Mixed: Paste  
Hardness Shore D: 85  
Graphite filled

**FR-8622-H FIBERGEL UFC:**

Hardness Shore D: 90  
Prepreg film on graphite veil

**FIBRE GLAST DEVELOPMENTS CORP.: Epoxy Resins: Room Temperature Curing Systems:****Low Toxicity Epoxy Laminating Resin:****PLAST #88:**

Is a General Purpose Epoxy Laminating Resin for use in making high performance structural laminates with E-glass, S-glass, Kevlar and graphite.

**High Viscosity General Purpose Epoxy:****PLAST #96:**

Is a high viscosity undiluted bisphenol-A epoxy resin providing superior physical properties in laminates and castings. For laminating uses, Fibre-Glast recommends PLAST #87 Epoxy Cure. For casting applications, PLAST #89 Epoxy Cure will allow castings up to several inches thick.

**Masonry Repair Epoxy Kit:****PLAST #84/85:**

Is a two component 1:1 mix ratio epoxy putty thickened to a gap filling consistency developed for the repair of cracks in concrete and other masonry constructions.

**Stone Embedment Epoxy:****PLAST #81/67:**

Is a filled epoxy formulation for bonding of steel studs into granite surface plates and similar critical adhesion of metal to stone.

**Fast Curing Epoxy Hardener:****PLAST #87:**

Is a high viscosity, highly reactive amine curing agent for rapid curing of epoxy surface coats and laminating resins. Mix 5 parts resin to a part #87. Excellent wet-out and surface characteristics when used with either #88 or #96 Epoxy Resins.

**Slow Curing Casting Hardener:****PLAST #89:**

Is a medium viscosity polyamide epoxy curing agent. Use of this curing agent with either #88 or #96 Epoxy Resins offers several hours of pot life and a resulting mix that can be cast several inches thick without cracking. Typically mixed 1:1 with epoxy resin but mix can be varied.

**Slow Curing Laminating Hardener:****PLAST #97:**

Is a medium viscosity polyamide epoxy curing agent which will allow approximately one hour of pot life with excellent wet-out. Mixed 33 to 133%, this curing agent offers a modest amount of flexibility to the cured resin properties.

**FIBRE-GLAST DEVELOPMENTS CORP.: Epoxy Resins: Non-MDA,  
High Temp Systems:**

**High Temperature Laminating Epoxy:**

**PLAST #564:**

EPOXICAL Laminating Epoxy is a laminating epoxy resin formulated for high temperature molds and tools. It is recommended for aircraft bonding fixtures, large laminated vacuum-forming and urethane cure molds where 450F performance temperatures are required. This product is frequently specified in aircraft and aerospace programs. Cures at room temperature overnight before the oven post-cure.

Mixing Ratio (Resin:Hardener; by weight): 14:1

Pot life (minutes for 1 lb.): 88

Viscosity, Mixed 73F (cps): 3,080

Shrinkage (Laminate; in/in): .0002

Flexural Strength 73F (8 ply laminate; psi): 34,600

Flexural Modulus 450F: 4,600

Color: Black

**High Temperature Epoxy Surface Coat:**

**PLAST #565:**

EPOXICAL Surface Coat is an iron-filled high temperature epoxy surface coat to be used with PLAST #564 Laminating Resin for laminations requiring service temperatures between 300 to 450F. This system can be used for bonding fixtures, vacuum forming tools, molds for polyester hand layup and bag molding. To improve handling and to lower viscosity, the system can be warmed only to 115F just prior to mixing.

Mixing Ratio (Resin:Hardener; by weight): 15:1

Pot Life (minutes for 1 lb.): 90

Viscosity, Resin Only (cps): 120,000

Viscosity, Mixed (cps): 55,000

Color: Dark Gray

**High Temperature Epoxy Casting Resin:**

**PLAST #563:**

EPOXICAL Casting Resin is an aluminum-filled, high temperature epoxy mass-casting resin with properties approaching those of metallic aluminum. This system offers excellent machinability properties and is recommended for casting tools, molds, models for prototype piece parts, and large castings. One inch thick castings can be made in non-metallic molds and two inch thick castings can be poured in metallic molds. This system will perform to 305F.

Mixing Ratio (Resin:Hardener; by weight): 14:1

Pot Life (minutes for 1 lb.): 140

Viscosity, Resin Only (cps): 120,000

Viscosity, Mixed (cps): 6,000

Heat Distortion (F; 264 psi/ASTM 648): 305

Color: Aluminum Gray

These products do not contain MDA and are not considered carcinogens by the IARC, NTP or OSHA.

EPOXICAL is a registered trademark of U.S. Gypsum/Dap, Inc.

**FIBRE GLASS EVERCOAT CO.: Fiberglass Repair Materials:****Table Top Resin (Epoxy):**

Produces a tough, clear, plastic finish with a permanent high gloss. Mix equal parts, stir and pour onto surface.

**Ten Set:**

A two part epoxy adhesive that cures in ten minutes. Extra quick, extra strong. Use on wood, plastic, metal and fiberglass.

**EVERFIX Epoxy Resin:**

A super strong 50-50 mix for molding, laminating, and repairs where superior strength and adhesion are required. Use with SEA-GLASS Cloth and EVERCOAT Coloring Agents.

**EVERSTAR:**

A 4-to-1 ratio tough epoxy for boat building or repair. Complete system.

**Epoxy Paste Glue:**

A super strong two part glue which permanently bonds wood, styrofoam, plastics, and plasters. Sets in one hour, cures overnight.

**Epoxy Mender (SMC/FRP):**

A strong adhesive for bonding two different materials together. Excellent for wood or metal. Working time: 1 hour. Sands easily.

When and where to use to use Evercoat's Epoxy repair materials:

Use On: All woods including redwood, hardwoods, styrofoam, brick, glass, concrete, some plastics, and metal.

Product:	Use For:
Epoxy Mender	Filling dents, deep scratches, gouges, small holes.
Ten Set	
SEA GLASS	Build up reinforcement for repair of holes/use with Resin also for molding objects.
MAT	
SEA GLASS	Apply with Resin for reinforcement and finishing.
CLOTH	
EVERFIX Epoxy Resin	As adhesive, cloth laminate, and as a protective coating over other surfaces
EVERSTAR Epoxy System	Boat building-wood or fiber-glass. Repairs on plastic, wood, metal. This is a 4 to 1 mix epoxy of superior strength. Blister repair.
Epoxy Paste Glue	Repairs needing exceptional strength, won't shrink while curing. Never brittle.
Epoxy Repair Kit	Patching holes, filling dents, cracks on surfaces where polyester cannot be used.

**FORMULATED RESINS INC.: Resins for Capacitors:**

**16-100 Lowest Viscosity:**

**16-101 Higher Viscosity:**

Flame retardant epoxy resin for potting box stack film capacitors.

A very low viscosity high temperature resistant encapsulant designed for use in boxed capacitors.

Viscosity @ 25C cps: 16-100 Resin-6,400/16-101 Resin: 16,500  
Specific Gravity: 16-100: 1.38/16-101: 1.55

**16-200:**

**16-201 Flame Retardant:**

Low viscosity self-leveling "wrap and fill" capacitor encapsulating resin.

A premium grade epoxy encapsulant designed for end filling axial lead film wrapped capacitors.

Viscosity @ 25C cps: 16-200 Resin-50,000/16-201 Resin-35,000  
Specific Gravity: 16-200: 1.60/16-201: 1.60

**16-300:**

**16-301 Flame Retardant:**

Stay in place thixotropic "wrap and fill" capacitor epoxy sealing resin system

A stay in place sealant formulated to flow around leads, filling voids, solder joints, arbor holes and imperfections on the metallized sprayed surface.

Viscosity @ 25C cps: 16-300 Resin-130,000/16-301 Resin-170,000  
Specific Gravity: 16-300: 1.37/16-301: 1.53

**16-400:**

**16-401 Flame Retardant:**

Low viscosity self-leveling tantalum capacitor encapsulant

A 100% reactive, filled, two component epoxy resin system designed for use in encapsulating tantalum capacitors.

Viscosity @ 25C cps: 16-400 Resin-38,000/16-401 Resin-29,000  
Specific Gravity: 16-400: 1.43/16-401: 1.55

**16-500:**

**16-501 Lowest Viscosity:**

Clear low viscosity unfilled epoxy encapsulant and impregnating resin system

A capacitor grade epoxy encapsulant and impregnating resin system for those applications where a very thin unfilled resin system is required.

Viscosity @ 25C cps: 16-500 Resin-15,000/16-501 Resin: 3,300  
Specific Gravity: 16-500: 1.16/16-501: 1.12

**16-600:**

Flame retardant liquid capacitor dip coating epoxy resin polymer system.

A conformal liquid dip coating that cures to form an enamel like finish that is impervious to solvents, chemicals, and moisture. Passes UL 94 V-O flame test.

Viscosity : Thixotropic/Viscosity Adjustable  
Specific Gravity: 16-600 Resin: 1.40



**HARDMAN INC.: Epoxies in Job-Size DOUBLE-BUBBLE Packages:****Extra Fast Setting:**

Red package

Extra fast setting for quick repairs. Bonds to wood, glass, metal, stone and concrete.

**Typical Uses:**

Repairing of tools, auto parts, electrical and electronic components, furniture and other applications that require a fast-setting adhesive.

Work Time: 3 minutes

Handling Strength: 15-30 minutes

Color: Light amber (translucent)

Viscosity: Syrup

**Machineable, Fast Setting:**

Yellow package

A machineable tooling and body patch that adheres to metal, wood and hard plastics. Can be machined, sanded, drilled and tapped.

**Typical Uses:**

Patching and filling voids and scratches in plastic and metal tooling, patterns and furniture.

Work Time: 25 minutes

Handling Strength: 4 hours

Color: Aluminum

Viscosity: Honey

**Wet Surface Patching:**

Purple package

A gap-filling adhesive for use in damp or moist environments. Cures and bonds under water. Bonds to stone, glass, china, wood and fiberglass.

**Typical Uses:**

Wet crack sealant, plumbing patch; repair of gutters, battery cases and boats. Excellent adhesive for use with fiberglass tape.

Work Time: 25 minutes

Handling Strength: 5 hours

Color: Gray

Viscosity: Heavy syrup

**Transparent, water clear:**

Green package

High impact resistance. Can be used as an adhesive or coating. Bonds to metal, ceramics, glass, porcelain and wood. Covers and fills scratches.

**Typical Uses:**

Repair of printed circuit boards (does not electrically corrode copper), optical equipment, jewelry, art objects and other applications where a clear bond is desired. An excellent furniture scratch filler and embedment medium for electron microscopy specimens.

Work Time: 120 minutes

Handling Strength: 8 hours

Color: Clear

Viscosity: Motor oil

**HARDMAN INC.: Epoxies in Job-Size DOUBLE-BUBBLE Packages  
(Continued):**

**General Purpose:**

Blue package

A long work-life adhesive for wood, metal, ceramics and plastics.

**Typical Uses:**

Woodworking, furniture, tool and sports equipment repair.

Work Time: 3 hours

Handling Strength: 8 hours

Color: Amber

Viscosity: Heavy syrup

**Regular Setting:**

Black package

A low-viscosity adhesive, with a fairly long work-life. Cures to a light color and bonds well to wood, metal, concrete, fabrics and most plastics.

**Typical Uses:**

Excellent for applications requiring a thin glue line.

Ideal for fine furniture, hobby use and sports equipment repair.

Work Time: 45 minutes

Handling Strength: 4 hours

Color: Light (almost colorless)

Viscosity: Maple syrup

**Very High Peel Strength:**

Orange package

A flexible, tough and durable vibration resistant adhesive. High peel and shear strengths. Bonds to polystyrene, ABS, nylon, metal, wood, masonry and rubber.

**Typical Uses:**

For repair of marine, aircraft, auto, truck and tractor parts. Excellent grinding wheel hub adhesive. Recommended for door and window gaskets.

Work Time: 4 hours

Handling Strength: 18 hours

Color: Gray

Viscosity: Honey

**HARDMAN INC.: Heat Cure Epoxy:****EPOCAP 16358 A/B:**

Rigid, high heat distortion temperature, filled flame retardant, UL recognized 94V-0 system. Excellent thermal conductivity. Very low exotherm and mixed viscosity. Fast moderate heat cure. Low shrinkage and coefficient of thermal expansion. Excellent high temperature electrical properties, thermal shock performance.

Mix Ratio (P.B.W.) A/B: 100/70

Mixed Viscosity (cps/temp): 550/90C

Color: Black

Specific Gravity (mixed): 1.79

Excellent impregnation. Long work life. Low odor. Vacuum stable. For small to medium size masses. Superior high temperature performance.

**EPOCAP 19271 A/B:**

Filled, flame retardant (passes UL94HB), ultra low viscosity material for vacuum casting or potting. Fast heat cure. Excellent electrical and thermal shock properties. Exceptional property retention after long term heat aging.

Mix Ratio (P.B.W.) A/B: 100/100

Mixed Viscosity (cps/temp): 132/80C

Color: Blue

Specific Gravity (mixed): 1.50

Long work life. Convenient mix ratio. Low odor. Maximum impregnation. Vacuum stable. For small to medium masses.

**EPOCAP 13111A-13380B:**

Flexible, low viscosity, filled, high performance system with good elongation. Excellent impregnation, superior crack resistance and thermal shock performance. Fast heat cure. Excellent elevated temperature electrical properties.

Mix Ratio (P.B.W.) A/B: 100/298

Mixed Viscosity (cps/temp): 325/85C

Color: Black

Specific Gravity (mixed): 1.29

For large mass castings. Ideal for stress sensitive components. Long work life. Low exotherm. Vacuum stable.

**EPOCAP 17570 A/B:**

High performance, flame retardant filled system. UL recognized 94V-0 system. Exhibits very low shrinkage and thermal expansion. High heat distortion temperature, excellent elevated temperature electrical properties. Excellent impregnation.

Mix Ratio (P.B.W.) A/B: 100/114

Mixed Viscosity (cps/temp): 900/90C

Color: Natural or Black

Specific Gravity (mixed): 1.68

Convenient and forgiving mix ratio. Superior process control. Fast cure cycle.

**HARDMAN INC.: Heat Cure Epoxy (Continued):**

**EPOCAP 16129 A/B:**

Flexible, low viscosity, unfilled system with excellent crack resistance and moisture protection for stress sensitive components. Excellent performance for cost effective sand potting. Fast heat cure and 1-2 day pot life.

Mix Ratio (P.B.W.) A/B: 100/100

Mixed Viscosity (cps/temp): 1,500/25C

Color: Black

Specific Gravity (mixed): 1.04

Repairable. Convenient 1:1 mix ratio. Superior void-free parts. Excellent for assemblies with ferrite cores and glass diodes.

**EPOCAP 13038A-18039B:**

A rigid, low viscosity, filled system with high heat distortion temperature. High tensile strength. Excellent elevated temperature electrical properties. Fast cure cycle.

Mix Ratio (P.B.W.) A/B: 100/100

Mixed Viscosity (cps/temp): 10,000/25C

Color: Blue

Specific Gravity (mixed): 1.61

1:1 mix ratio. Long work life in large batches. Recommended for small to medium size parts. Low odor.

**Room Temperature Cure Epoxy:**

**EPOCAP 17550 A/B:**

A filled, medium viscosity, nonabrasive, flame retardant, UL recognized 94V-O. Extremely low shrinkage and exotherm. Semi-flexible. Excellent thermal cycling and thermal shock performance.

Mix Ratio (P.B.W.) A/B: 100/88

Mixed Viscosity (cps/temp): 14,000/25C or 3,000/49C

Color: Green

Specific Gravity (mixed): 1.64

Low cost. Mix ratio 1:1 by volume. Long work life. Lower viscosity, rigid version designated: 17550A/79B. Black version: 17599A/17583B.

**EPOCAP 13070 A/B:**

Very high thermal conductivity, excellent thermal shock performance. Low viscosity for easy processing. Very low shrinkage and exotherm for stress sensitive components. Flame retardant, UL recognized 94V-O version designated 13341A/2420TCB. Blue version available as 13324A/B.

Mix Ratio (P.B.W.) A/B: 100/7

Mixed Viscosity (cps/temp): 12,000/25C

Color: Black

Specific Gravity (mixed): 1.96

Excellent heat dissipation and void free parts. For low voltage applications. Good for high component density assemblies.

**HARDMAN INC.: Room Temperature Cure Epoxy (Continued):****EPOCAP 15144 A/B:**

Medium viscosity, filled, nonabrasive system. Extremely low shrinkage and exotherm. Convenient 1:1 volume mix ratio. Semirigid.

Mix Ratio (P.B.W.) A/B: 100/90

Mixed Viscosity (cps/temp): 18,000/25C or 2,500/49C

Color: Green

Specific Gravity (mixed): 1.64

General purpose low cost potting material. Long work life.

Low viscosity if heated slightly.

**EPOCAP 19284 A/B:**

A filled, general purpose, low viscosity, nonabrasive system. Excellent chemical resistance and adhesion to most substrates. Moderate thermal conductivity. Excellent impregnation.

Mix Ratio (P.B.W.) A/B: 100/7

Mixed Viscosity (cps/temp): 4,800/25C

Color: Black

Specific Gravity (mixed): 1.54

Low shrinkage and exotherm. Recommended for void free parts and high component density assemblies. Meets UL94HB @ .125".

**EPOCAP 19174 A/B:**

Flame retardant, UL recognized 94V-O, low viscosity, filled, nonabrasive system. Semirigid. Excellent thermal shock performance. Easily deaired under 29" vacuum for void-free parts.

Mix Ratio (P.B.W.) A/B: 100/30

Mixed Viscosity (cps/temp): 4,000/25C

Color: Black

Specific Gravity (mixed): 1.43

Simple 2:1 volume mix ratio. Long work life. Gray (19296A/B), blue (19071A/B), beige (19293A/B), versions available.

**EPOCAP 19257A-20028B:**

Very low viscosity, unfilled, long work life system. Excellent electrical properties. Semiflexible. Excellent thermal shock performance when cured with EPOCAP 2420TCB.

Mix ratio (P.B.W.) A/B: 100/28

Mixed Viscosity (cps/temp): 1,800/25C

Color: Black

Specific Gravity (mixed): 1.27

For applications requiring good flow, void free parts, and high penetration. Low odor. Meets criteria for UL94V-O @ .250".

**EPOCAP 16505 A/B:**

General purpose, medium viscosity, filled, nonabrasive system. Rigid, extremely low shrinkage and excellent electrical properties.

Mix Ratio (P.B.W.) A/B: 100/10

Mixed Viscosity (cps/temp): 8,000/25C

Color: Blue

Specific Gravity (mixed): 1.46

For small mass applications. Low odor. Easily de-aired under 29" vacuum. Moderate work life.

**HASTINGS PLASTICS CO.: HAPEX Casting Compounds:**

**HAPEX 1200A:**

This is a general purpose resin which has excellent casting properties. When used with 1227 SELFSET Hardener it hardens at room temperature in large masses, resulting in hard tough clear castings. It may be pigmented to any color by adding HASTINGS Epoxy Color Pastes. In the HASTINGS "Set" system of packaging, this combination is designated 1200A/D. It may also be used with other HAPEX Hardeners.

**HAPEX 1214A THIKAST:**

This is a gray metallic, filled, casting resin designed for use in tooling and general purpose castings where dimensional stability and low exotherm are important requirements. It may also be used with other HAPEX Hardeners.

**HAPEX 1225 MASKAST:**

These are black, highly filled, excellent pourability casting systems designed for volume casting where dimensional stability, low exotherm, and low cost are necessary. They were designed for large structures and tooling. MASKASTS have impact strength and good machining properties. 1225 has excellent abrasion resistance and good electrical properties.

**1200A:**

Set Designation: 1200A/D  
Recommended Hardener: 1227  
Compound/Hardener Ratio: 100/45  
Recommended Cure Cycle Hours: 24 hrs. R.T.  
Viscosity of Compound (cps): 1500-3000

**1214A:**

Set Designation: 1214A/B  
Recommended Hardener: 1221  
Compound/Hardener Ratio: 100/4.5  
Recommended Cure Cycle Hours: 24 Hrs. R.T.  
Viscosity of Compound (cps): 30,000

**1214A:**

Set Designation: 1214A/D  
Recommended Hardener: 1227  
Compound/Hardener Ratio: 100/16.5  
Recommended Cure Cycle Hours: 24 Hrs. R.T.  
Viscosity of Compound (cps): 30,000

**1214A:**

Set Designation: 1214A/E  
Recommended Hardener: 1210-14  
Compound/Hardener Ratio: 100/4  
Recommended Cure Cycle Hours: 24 Hrs. R.T.  
Viscosity of Compound (cps): 30,000

**1225:**

Set Designation: 1225A  
Recommended Hardener: No Choice  
Compound/Hardener Ratio: 100/20  
Recommended Cure Cycle Hours: 24 Hrs. R.T.  
Viscosity of Compound (cps): 17,000

**HASTINGS PLASTICS CO.: HAPEX Epoxy Resins:****HAPEX Resin:****1200A:**

Low viscosity (3000-5000). 100% reactive. For laminating and casting. Medium Hi-Temp with Hi-Temp Hardeners.

**1290:**

Medium viscosity (10,000-13,000). 100% reactive. For casting, laminating and Hi-Temp applications.

**1208:**

Neutral compound paste resin.

**1214A:**

Metallic compound, filled epoxy. Can be cast to thickness of 6 inches with right hardeners.

**1225:**

Black compound, medium viscosity. Mass casting. Excellent abrasion resistance.

**1231:**

Low density paste. Excellent as structural adhesive, insulating material. Coring and honeycomb edge compound.

**1240-25:**

Gray compound. Medium viscosity. Mass casting.

**1240-1:**

Blue Thixotropic epoxy. Excellent for mold making.

**1240-51:**

Neutral compound 85 Shore D. (Gel-kote)

**HAPEX Hardeners:****1201:**

General Type: Fast Cure

Viscosity: Low Viscos. Liquid

Cure Cycle (Hrs. @ F.): 24 @ RT

**1210-14:**

General Type: Med-Hi Temp

Viscosity: Med Viscos. Liquid

Cure Cycle (Hrs @ F.): 24 @ RT/3 @ 180/2 @ 300

**1210-33:**

General Type: 5 Minute Hardener

Viscosity: Low Viscos. Liquid

Cure Cycle (Hrs. @ F.): 1 hour

**1221:**

General Type: Medium Pot Life

Viscosity: Low Viscos. Liquid

Cure Cycle (Hrs. @ F.): 24 @ RT

**1226:**

General Type: Rigid/Flexible

Viscosity: Med. Viscos. Liquid

Cure Cycle (Hrs. @ F.): 24+ @ RT

**1227:**

General Type: Rigid/Flexible

Viscosity: Med. Viscos. Liquid

Cure Cycle (Hrs. @ F.): 24+ @ RT

**HASTINGS PLASTICS CO.: HAPEX 1225 MASKAST Epoxy Casting Resin:**

HAPEX 1225 MASKAST is a relatively low mixed-viscosity, black, epoxy-base, liquid casting resin generally used with HAPEX 1226 TUFSET to make tough, no shrink, large-mass castings. Its most outstanding features are low cost per cubic inch, low exotherm in large section castings, no shrinkage, room temperature cure, toughness, low coefficient of expansion, relatively non toxic, and excellent handling properties. The hardness and resiliency of MASKAST 1225 can be controlled by increasing the amount of TUFSET 1226 above the minimum of 15 PBW.

**Applications:**

Its excellent handling and physical properties suggest applications such as solid cast dies, cast faces on metal dies, potting, duplicate masters, models, vise jaws, holding fixtures, keller patterns, etc.

**Mixing Proportions:**

HAPEX 1225 MASKAST: 100 parts by weight  
HAPEX 1226 TUFSET: 20 parts by weight

**Resin:**

Color: Black  
Viscosity at 72F (cps): 131,000  
Specific Gravity: 2.27  
Weight per Gallon (lbs.): 18.9

**Resin TUFSET Mix:**

Viscosity at 72F. (cps): 17,000  
Color: Black  
Flow Time, 20cc thru 1/8 orifice at 72F. (min): 13  
Gel Time at 100F. (min): 75  
Peak Exotherm F.: 114  
Time to Peak (min.): 60  
Specific Gravity: 2.144  
Coverage (cu. in./lb.): 13.04

**Resin TUFSET Cured:**

Density (Lbs./cu.in.): 0.0716

Hardness (Shore D):	1/2"	1/16" (Casts)
6 Hrs.	5/0	0
12	15/0	5/0
18	35/15	30/10
24	68/52	60/40
48	78/70	70/58

**Shear Strength:**

Alum. to Alum. (psi): 2200



**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Adhesives/Pastes:**

Hexcel's materials provide bonding products in all viscosities and cure times to accommodate the most demanding needs. Liquid products are the lower viscosity, thin film bonding or encapsulating; paste products are excellent for metal-to-metal, metal-to-glass and wood-to-wood bonding.

**9910:**

Peak Exotherm (100g @ 77F): 200  
Cure Time @ 77F (Hrs): 24  
Tack Free @ 77F (Hrs): 1.25  
Pot Life @ 77F (Min.): 15  
Viscosity, Cps: Paste  
Ratio, by Volume: 100/10  
Ratio, by Weight: 100/100

**9915:**

Peak Exotherm (100g @ 77F): 220  
Cure Time @ 77F (Hrs): 4  
Tack Free @ 77F (Hrs): 0.5  
Pot Life @ 77F (Min.): 5  
Viscosity, Cps: Paste  
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/100

**9921:**

Peak Exotherm (100g @ 77F): 190  
Cure Time @ 77F (Hrs): 48  
Tack Free @ 77F (Hrs): 4  
Pot Life @ 77F (Min.): 22  
Viscosity, Cps: 30 x 10<sup>3</sup>  
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/85

**9922:**

Peak Exotherm (100g @ 77F): 178  
Cure Time @ 77F (Hrs): 72  
Tack Free @ 77F (Hrs): 10  
Pot Life @ 77F (Min.): 120  
Viscosity, Cps: 30x10<sup>3</sup>  
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/85

**9923:**

Peak Exotherm (100g @ 77F): 188  
Cure Time @ 77F (Hrs): 24  
Tack Free @ 77F (Hrs): 2  
Pot Life @ 77F (Min.): 20  
Viscosity, Cps: 21x10<sup>4</sup>  
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/100

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Adhesives/Pastes:**

9925:

Peak Exotherm (100g @ 77F): 195  
Cure Time @ 77F (Hrs): 4  
Tack Free @ 77F (Hrs): 20-30  
Pot Life @ 77F (Min): 5  
Viscosity, cps:  $1 \times 10^3$   
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/90

9935:

Peak Exotherm (100g @ 77F): 290  
Cure Time @ 77F (Hrs): 4  
Tack Free @ 77F (Hrs): 0.2  
Pot Life @ 77F (Min): 3-5  
Viscosity, Cps:  $13.2 \times 10^3$   
Ratio, by Volume: 100/100  
Ratio, by Weight: 100/96

2403:

Peak Exotherm (100g @ 77F): 150  
Cure Time @ 77F (Hrs): 24-36  
Tack Free @ 77F (Hrs): 12-16  
Pot Life @ 77F (Min): 110  
Viscosity, Cps:  $20 \times 10^4$   
Ratio, by Volume: 100/45  
Ratio, by Weight: 100/50

5313:

Peak Exotherm (100g @ 77F): 180  
Cure Time @ 77F (Hrs): 12  
Tack Free @ 77F (Hrs): 4  
Pot Life @ 77F (Min): 30  
Viscosity, Cps:  $3.6 \times 10^{13}$   
Ratio, by Volume: 100/9  
Ratio, by Weight: 100/9

5323:

Peak Exotherm (100g @ 77F): 200  
Cure Time @ 77F (Hrs): 16-24  
Tack Free @ 77F (Hrs): 4  
Pot Life @ 77F (Min): 60  
Viscosity, Cps: THIXO  
Ratio, by Volume: 100/122  
Ratio, by Weight: 100/100

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Adhesives/Pastes:**

**5363:**

Peak Exotherm (100g @ 77F): 165  
Cure Time @ 77F (Hrs): 24  
Tack Free @ 77F (Hrs): 8  
Pot Life @ 77F (Min): 120  
Viscosity, Cps:  $15 \times 10^3$   
Ratio, by Volume: 100/112  
Ratio, by Weight: 100/100

**6400\*:**

Pot Life @ 77F (Min): 6 Mos.  
Viscosity, cps: THIXO

\* 1-Component, thermally conductive

**6401:**

Pot Life @ 77F (min): 6 mos.  
Viscosity, cps: THIXO

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Casting Compounds:**

**3300:**

Type Cure: Room Temp.  
Color: Black  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 24-48  
Pot Life, min. @ 77F: 70  
Mixed Viscosity, Cps: 25,000  
Mix Ratio by Weight: 100/10-30  
Maximum Casting Thickness: 4"-6"

**3301:**

Type Cure: Room Temp.  
Color: Black  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 24  
Pot Life, min. @ 77F: 70  
Mixed Viscosity, Cps: 20,000  
Mix Ratio by Weight: 100/10  
Maximum Casting Thickness: 2"

**3302:**

Type Cure: Room Temp.  
Color: Metallic Black  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 16  
Pot Life, min. @ 77F: 30  
Mixed Viscosity, Cps: 10,000  
Mix Ratio by Weight: 100/10  
Maximum Casting Thickness: 1/2"-1-1/2"

**3304:**

Type Cure: Room Temp.  
Color: Brown  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 24  
Pot Life, min. @ 77F: 60  
Mixed Viscosity, Cps: 18,000  
Mix Ratio by Weight: 100/30-85  
Maximum Casting Thickness: 6"

**3306:**

Type Cure: Room Temp.  
Color: Metallic Gray  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 16  
Pot Life, min. @ 77F: 45  
Mixed Viscosity, Cps: 6,000  
Mix Ratio by Weight: 100/10  
Maximum Casting Thickness: 1"

**3307:**

Type Cure: Room Temp.  
Color: Gray  
Full Cure @ 77F, Days: 5  
Demold @ 77F, Hrs.: 16  
Pot Life, min. @ 77F: 36  
Mixed Viscosity, Cps: 6,000  
Mix Ratio by Weight: 100/10

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Casting Compounds  
(Continued):****3312:**

Type Cure: Room Temp.  
Color: Black  
Full Cure @ 77F, Days: 14  
Demold @ 77F, Hrs.: 48  
Pot Life, min. @ 77F: 18-24 Hours  
Mixed Viscosity, Cps: 35,000  
Mix Ratio by Weight: 100/4  
Maximum Casting Thickness: 3-5 ft.

**2350R/1130H:**

Type Cure: Room Temp.  
Color: Clear  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 6  
Pot Life, min. @ 77F: 25  
Mixed Viscosity, Cps: 900  
Mix Ratio by Weight: 100/41  
Maximum Casting Thickness: 1/2"

**2414R/3312H:**

Type Cure: Room Temp./High Temp.  
Color: Gray  
Full Cure @ 77F, Days: 14/Heat  
Demold @ 77F, Hrs.: 30  
Pot Life, min. @ 77F: 18-24 Hours  
Mixed Viscosity, Cps: 80,000  
Mix Ratio by Weight: 100/4  
Maximum Casting Thickness: 5-7 ft.

**2315H:**

Type Cure: Room Temp.  
Color: Gray  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 8  
Pot Life, min. @ 77F: 210  
Mixed Viscosity, Cps: 45,000  
Mix Ratio by Weight: 100/11  
Maximum Casting Thickness: 4"

**2343H:**

Type Cure: Room Temp./High Temp.  
Color: Gray  
Full Cure @ 77F, Days: Heat  
Demold @ 77F, Hrs.: 6  
Pot Life, min. @ 77F: 150  
Mixed Viscosity, Cps: 52,000  
Mix Ratio by Weight: 100/9  
Maximum Casting Thickness: 2"

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Electrical/  
Electronic: Potting/Encapsulation:**

Superior 1-component and 2-component system technology. This product line offers a wide range of viscosities, cure schedules and operating temperatures with or without flame retardancy.

**Potting:**

**6502:**

System Components: 1  
Viscosity @ 75F (cps): 62x10<sup>3</sup>  
Gel Time, min @ 250F: 10-12  
Color: Black  
Hardness, Shore D: 88

**6503:**

System (Components): 1  
Viscosity @ 75F (cps): 90x10<sup>3</sup>  
Gel Time, min @ 250F: 12-14  
Color: Gray  
Hardness, Shore D: 85

**6504:**

System (Components): 1  
Viscosity @ 75F (cps): 25x10<sup>4</sup>  
Viscosity @ 100F (cps): 35x10<sup>3</sup>  
Gel Time, min @ 250F: 12-14  
Color: Black  
Hardness, Shore D: 90

**6507:**

System (Components): 1  
Viscosity @ 75F (cps): 80x10<sup>3</sup>  
Gel Time, min @ 250F: 15  
Color: Red-Orange  
Hardness, Shore D: 88

**6523:**

System (Components): 1  
Viscosity @ 75F (cps): Thixo  
Gel Time, min @ 250F: 12-14  
Color: Black  
Hardness, Shore D: 88

**4002:**

System (Components): 2  
Viscosity @ 75F (cps): 7,000  
Viscosity @ 100F (cps): 1,500  
Color: Black  
Hardness, Shore D: 88

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Electrical/  
Electronic: Potting/Encapsulation (Continued):****Potting(Continued):****4003:**

System (Components): 2  
Viscosity @ 75F (cps): 3,300  
Viscosity @ 100F (cps): 750  
Ratio PBW: 100/12  
Color: White  
Hardness, Shore D: 90

**4004:**

System (Components): 2  
Viscosity @ 75F (cps): 5,000  
Viscosity @ 100F (cps): 1,100  
Ratio PBW: 100/42  
Color: Gray  
Hardness, Shore D: 87

**1411:**

System (Components): 2  
Viscosity @ 75F (cps): 205  
Viscosity @ 100F (cps): 50  
Ratio PBW: 100/100  
Color: Amber  
Hardness, Shore D: 88

**1423:**

System (Components): 2  
Viscosity @ 75F (cps): 600  
Viscosity @ 100F (cps): 70  
Ratio PBW: 100/100  
Color: Black  
Hardness, Shore D: 55-60

**1425:**

System (Components): 2  
Viscosity @ 75F (cps): 1,600  
Viscosity @ 100F (cps): 250  
Ratio PBW: 100/100  
Color: Black  
Hardness, Shore D: 55-60

**1475:**

System (Components): 2  
Viscosity @ 75F (cps): 65,000  
Viscosity @ 100F (cps): 12,100  
Ratio PBW: 100/100  
Color: Black  
Hardness, Shore D: 70

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Electrical/  
Electronic: Potting/Encapsulation (Continued):**

**Vacuum Impregnating:**

**6600:**

System (Components): 1  
Viscosity @ 75F (cps):  $14 \times 10^4$   
Viscosity @ 100F (cps):  $50 \times 10^3$   
Gel Time, min @ 250F: 12-14  
Color: Black  
Hardness, Shore D: 87

**6602:**

System (Components): 1  
Viscosity @ 75F (cps):  $24 \times 10^4$   
Gel Time, min @ 250F: 12-14  
Color: Black  
Hardness, Shore D: 87



**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Filament Winding Systems:****2410R/2170H:**

Type Cure: Room Temp.  
Color: Clear Amber  
Full Cure @ 77F, Days: 7  
Demold @ 77F, Hrs.: 12  
Pot Life, min. @ 77F: 80  
Mixed Viscosity, Cps: 800  
Mix Ratio by Weight: 100/38  
Maximum Casting Thickness: 2"

**2431R/2346H:**

Type Cure: High Temp.  
Color: Clear Amber  
Full Cure @ 77F, Days: --  
Demold @ 77F, Hrs.: 24  
Pot Life, min. @ 77F: 8 Hrs.  
Mixed Viscosity, Cps: 1,600  
Mix Ratio by Weight: 100/7.5  
Maximum Casting Thickness: 1"

**2434R/2320H:**

Type Cure: High Temp.  
Color: Dark Brown  
Demold @ 77F, Hrs.: 24  
Pot Life, min. @ 77F: 8 Hrs.  
Mixed Viscosity, Cps: 2,100  
Mix Ratio by Weight: 100/23  
Maximum Casting Thickness: 3"

**2446R/2323H:**

Type Cure: High Temp.  
Color: Dark Brown  
Demold @ 77F, Hrs.: 50  
Pot Life, min @ 77F: 30 Hrs  
Mixed Viscosity, Cps: 4,111  
Mix Ratio by Weight: 100/32  
Maximum Casting Thickness: 3"

**2447R/2347H:**

Type Cure: High Temp.  
Color: Dark Brown  
Demold @ 77F, Hrs.: 48  
Pot Life, min @ 77F: 28 Hrs.  
Mixed Viscosity, Cps: 2,100  
Mix Ratio by Weight: 100/7.5  
Maximum Casting Thickness: 1-2"

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Laminating Resins:**

**2300:**

Type Cure: Room Temp.  
Color: White  
Full Cure @ 77F, Days: 3  
Tack Free @ 77F, Hrs.: 2  
Pot Life @ 77F, minutes: 22  
Mixed Viscosity, Cps: 3,000  
Mix Ratio by Weight: 100/12.5

**2302:**

Type Cure: Room Temp.  
Color: White  
Full Cure @ 77F, Days: 3-4  
Tack Free @ 77F, Hrs.: 1.5  
Pot Life @ 77F, minutes: 20  
Mixed Viscosity, Cps: 2,600  
Mix Ratio by weight: 100/16

**2315:**

Type Cure: Room Temp.  
Color: Opaque  
Full Cure @ 77F, Days: 16 hrs  
Tack Free @ 77F, Hrs.: 8  
Pot Life @ 77F, minutes: 60  
Mixed Viscosity, Cps: 1,000  
Mix Ratio by Weight: 100/33

**2316:**

Type Cure: Room Temp.  
Color: Opaque  
Full Cure @ 77F, Days: 16 hrs  
Tack Free @ 77F, Hrs.: 8  
Pot Life @ 77F, minutes: 120  
Mixed Viscosity, Cps: 1,200  
Mix Ratio by Weight: 100/32

**2317:**

Type Cure: Room Temp.  
Color: Opaque  
Full Cure @ 77F, Days: 16 hrs  
Tack Free @ 77F, Hrs.: 8  
Pot Life @ 77F, Cps: 70  
Mixed Viscosity, Cps: 800  
Mix Ratio by Weight: 100/32

**2318:**

Type Cure: Room Temp.  
Color: Opaque  
Full Cure @ 77F, Days: 16 hrs  
Tack Free @ 77F, Hrs.: 8  
Pot Life @ 77F, minutes: 120  
Mixed Viscosity, Cps: 700  
Mix Ratio by Weight: 100/32

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Laminating Resins  
(Continued):****2343:**

Type Cure: Room Temp./High Temp.  
Color: Clear  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 7  
Pot Life @ 77F, minutes: 135  
Mixed Viscosity, Cps: 1,500  
Mix Ratio by Weight: 100/38

**2348:**

Type Cure: Room Temp./High Temp.  
Color: Light Amber  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 5  
Pot Life @ 77F, minutes: 50  
Mixed Viscosity, Cps: 1,500  
Mix Ratio by Weight: 100/19

**2424:**

Type Cure: Room Temp./High Temp.  
Color: Clear  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 7  
Pot Life @ 77F, minutes: 300  
Mixed Viscosity, Cps: 2,600  
Mix Ratio by Weight: 100/38

**2460R/2153H:**

Type Cure: Room Temp.  
Color: Light Amber  
Full Cure @ 77F, Days: 1  
Tack Free @ 77F, Hrs.: 5  
Pot Life @ 77F, minutes: 20  
Mixed Viscosity, Cps: 500  
Mix Ratio by Weight: 100/17.25

**HEXCEL RESINS GROUP: EPOLITE Epoxy Products: Surface Coats:**

EPOLITE epoxy surface coats are two component room-temperature use systems (the 1301-1350 series) and high-temperature systems (1348, 1357). They impart ease of mixing and application with variable tack free times. Non-MDA products.

**1301:**

Type Cure: Room Temp.  
Color: White  
Full Cure @ 77F, Days: 5  
Tack Free @ 77F, Hrs.: 1.5  
Pot Life @ 77F, minutes: 20  
Mixed Viscosity, Cps: Thixo  
Mix Ratio by Weight: 100/10

**1302:**

Type Cure: Room Temp.  
Color: Metallic Black  
Full Cure @ 77F, Days: 5  
Tack Free @ 77F, Hrs.: 1  
Pot Life @ 77F, minutes: 23  
Mixed Viscosity, Cps: 20,000  
Mix Ratio by Weight: 100/7

**1350:**

Type Cure: Room Temp.  
Color: White  
Full Cure @ 77F, Days: 3  
Tack Free @ 77F, Hrs.: 1  
Pot Life @ 77F, minutes: 15  
Mixed Viscosity, Cps: Thixo  
Mix Ratio by Weight: 100/16

**1348:**

Type Cure: Room Temp./High Temp.  
Color: Black  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 3  
Pot Life @ 77F, minutes: 30  
Mixed Viscosity, Cps: Thixo  
Mix Ratio by Weight: 100/9

**1357:**

Type Cure: Room Temp./High Temp.  
Color: Black  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 7  
Pot Life @ 77F, minutes: 160  
Mixed Viscosity, Cps: Thixo  
Mix Ratio by Weight: 100/21

**1357/1358:**

Type Cure: Room Temp./High Temp.  
Color: Black  
Full Cure @ 77F, Days: --  
Tack Free @ 77F, Hrs.: 3  
Pot Life @ 77F, minutes: 48  
Mixed Viscosity, Cps: Thixo  
Mix Ratio by Weight: 100/21

**HEXCEL RESINS GROUP: Resin Systems for the Marine Industry:  
Filling and Patching Materials:**

Filling and patching materials from Hexcel combine water-proofing and filling requirements with excellent sandability and finishing. The 9925 is a low density, fast setting paste material, excellent for filling and patching. The 9201 has been formulated with a 60-minute pot life which allows the user to trowel from a large mass to a thin film.

**9925:**

Peak Exotherm (100g @ 77F): 175F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 20 Minutes  
Pot Life (@ 77F): 5 Minutes  
Viscosity cps (@ 77F): Paste  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/0.9  
Elongation %: 1  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $10 \times 10^{-5}$   
Tensile Modulus (psi x 10<sup>5</sup>): .1  
Tensile Strength psi: 4600  
1200 Impact: 2.0  
Linear Shrinkage @ 23C (4 Days %): .1  
Glass Transition Temperature F: 145  
Specific Gravity: .75

**9201:**

Peak Exotherm (100g @ 77F): 165F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 60 Minutes  
Viscosity cps (@ 77F): Paste  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/1  
Elongation %: 0.8  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $5 \times 10^{-5}$   
Tensile Modulus (psi x 10<sup>5</sup>): .1  
Tensile Strength psi: 8700  
1200 Impact: 1.4  
Linear Shrinkage @ 23C (4 Days %): .1  
Glass Transition Temperature F: 140  
Specific Gravity: 1.63

**HEXCEL RESINS GROUP: Resin Systems for the Marine Industry:  
High Performance Room-Temperature Laminating Systems:**

High-performance laminating systems are a new line of room-temperature product developed by Hexcel to meet current and anticipated OSHA requirements while delivering the highest physical properties achievable in a room-temperature system. These systems do not require post cure for property enhancement and may be vacuum bagged. High-performance laminating systems from Hexcel work very well with all fabrics including graphite and carbon and represent state-of-the-art technology in room-temperature systems.

**2315 System:**

Peak Exotherm (100g @ 77F): 294F  
Cure Time @ 77F: 16 Hours  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 1 Hour  
Viscosity cps (@ 77F): 1000  
Ratio by Mix Volume: 100/39  
Ratio by Mix Weight: 100/33  
Elongation %: 7.5  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $30 \times 10^{-5}$   
Tensile Modulus (Psi x 10<sup>5</sup>): 5  
Tensile Strength psi: 11,696  
1200 Impact: 6.2  
Linear Shrinkage @ 23C (4 Days %): .11  
Glass Transition Temperature F: 185  
Specific Gravity: 1.15

**2316 System:**

Peak Exotherm (100g @ 77F): 294F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 2 Hours  
Viscosity cps (@ 77F): 1200  
Ratio by Mix Volume: 100/37  
Ratio by Mix Weight: 100/32  
Elongation %: 5.5  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $30 \times 10^{-5}$   
Tensile Modulus (psi x 10<sup>5</sup>): 5  
Tensile Strength psi: 10,940  
1200 Impact: 4.8  
Linear Shrinkage @ 23C (4 Days %): .11  
Glass Transition Temperature F: 184  
Specific Gravity: 1.13

**HEXCEL RESINS GROUP: Resin Systems for the Marine Industry:  
RAE Systems:**

Hexcel's RAE systems provides low viscosity laminating chemistry for both cloth and wood and is available in both fast and slow pot-life versions. The low viscosity characteristics are helpful in making a low resin-to-cloth ratio lay up, especially on intricate parts where thin, lightweight parts are desirable.

**2426/2176:**

Peak Exotherm (100g @ 77F): 185F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 4 Hours  
Pot Life (@ 77F): 40 Minutes  
Viscosity cps (@ 77F): 800  
Ratio by Mix Weight: 100/21  
Elongation %: 1.7  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $8 \times 10^{-5}$   
Tensile Modulus (psi x 10<sup>5</sup>): 4  
Tensile Strength psi: 5450  
1200 Impact: 2.1  
Linear Shrinkage @ 23C (4 Days %): .1  
Glass Transition Temperature F: 131  
Specific Gravity: 1.04

**2426/2177:**

Peak Exotherm (100g @ 77F): 183F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 90 Minutes  
Viscosity cps (@ 77F): 800  
Ratio by Mix Weight: 100/21  
Elongation %: 1.8  
Thermal Shock, 10 Cycles: Passes  
Coefficient of Therm. Exp In/In/C:  $6 \times 10^{-5}$   
Tensile Modulus (psi x 10<sup>5</sup>): 3.5  
Tensile Strength psi: 5320  
1200 Impact: 2.3  
Linear Shrinkage @ 23C (4 Days %): .1  
Glass Transition Temperature F: 130  
Specific Gravity: 1.03

**HEXCEL RESINS GROUP: Resins Systems for the Marine Industry:  
STP Laminating Systems:**

STP systems represent Hexcel's original line of room-temperature resin and hardener systems. They can be interchanged to achieve desired viscosity, pot life and cure time. HEXCEL's STP line provides room-temperature cure products that respond favorably to post-cure at 150F, increasing physical properties up to 20 percent. These products have excellent wetting characteristics, are easily vacuum bagged and work well with all fabrics, including graphite and carbon.

**2410/2182:**

Peak Exotherm (100g @ 77F): 290F  
Cure Time @ 77F: 10 Hours  
Tack Free (@ 77F): 4 Hours  
Pot Life (@ 77F): 25 Minutes  
Viscosity cps (@ 77F): 1500  
Ratio by Mix Volume: 100/47  
Ratio by Mix Weight: 100/44  
Elongation %: 3.5  
Thermal Shock, 10 Cycles: Passes

**2410/2183:**

Peak Exotherm (100g @ 77F): 270F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 4 Hours  
Pot Life (@ 77F): 2 Hours  
Viscosity cps (@ 77F): 1300  
Ratio by Mix Volume: 100/47  
Ratio by Mix Weight: 100/44  
Elongation %: 3.5  
Thermal Shock, 10 Cycles: Passes

**2410/2184:**

Peak Exotherm (100g @ 77F): 265F  
Cure Time @ 77F: 3 Days  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 2 Hours  
Viscosity cps (@ 77F): 800  
Ratio by Mix Volume: 100/47  
Ratio by Mix Weight: 100/44  
Elongation %: 3.5  
Thermal Shock, 10 Cycles: Passes

**2410/2187:**

Peak Exotherm (100g @ 77F): 260F  
Cure Time @ 77F: 3 Days  
Tack Free (@ 77F): 8 Hours  
Pot Life (@ 77F): 5 Hours  
Viscosity cps (@ 77F): 1500  
Ratio by Mix Volume: 100/47  
Ratio by Mix Weight: 100/44  
Elongation %: 3.9  
Thermal Shock, 10 Cycles: Passes



## HEXCEL RESINS GROUP: Resin Systems for the Marine Industry: Structural Adhesives:

Hexcel's structural adhesive materials provide bonding products in all viscosities and cure times to accommodate the most demanding adhesive need. Liquid products are for lower viscosity, thin film bonding or encapsulating and paste products are excellent for metal-to-metal, metal-to-glass and wood-to-wood bonding.

### 9910:

Peak Exotherm (100g @ 77F): 190F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 2 Hours  
Pot Life (@ 77F): 20 Minutes  
Viscosity cps (@ 77F): Paste  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/1

### 9915:

Peak Exotherm (100g @ 77F): 192F  
Cure Time @ 77F: 16 Hours  
Tack Free (@ 77F): 10 Minutes  
Pot Life (@ 77F): 5 Minutes  
Viscosity cps (@ 77F): Paste  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/1

### 9921:

Peak Exotherm (100g @ 77F): 175F  
Cure Time @ 77F: 1 Day  
Tack Free (@ 77F): 4 Hours  
Pot Life (@ 77F): 35 Minutes  
Viscosity cps (@ 77F): 30,000  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/0.85

### 9922:

Peak Exotherm (100g @ 77F): 175F  
Cure Time @ 77F: 2 Days  
Tack Free (@ 77F): 10 Hours  
Pot Life (@ 77F): 2 Hours  
Viscosity cps (@ 77F): 30,000  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/0.85

### 9923:

Peak Exotherm (100g @ 77F): 145F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 2 Hours  
Pot Life (@ 77F): 20 Minutes  
Viscosity cps (@ 77F): 210,000  
Ratio by Mix Volume: 1/1  
Ratio by Mix Weight: 1/1

### 9935:

Peak Exotherm (100g @ 77F): 290F	Viscosity cps (@ 77F): 13,200
Cure Time @ 77F: 4 Hours	Ratio by Mix Volume: 1/1
Tack Free (@ 77F): 10 Minutes	Ratio by Mix Weight: 1/0.96
Pot Life (@ 77F): 4 Minutes	

**HEXCEL RESINS GROUP: Resin Systems for the Marine Industry:  
Wood Laminating Systems:**

Wood laminating systems from Hexcel provide the boat builder and the marine repair facility with a complete line of products for wood-to-wood, wood-to-cloth and cloth-to-cloth lamination. These products also make excellent finishing resins for top coats on wood and composite structures. Their chemistry is designed to encapsulate wood, permanently waterproofing and sealing while their penetrative power strengthens new wood structures and restores older structures.

**2460/2152:**

Peak Exotherm (100g @ 77F): 255F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 2 Hours  
Pot Life (@ 77F): 10 Minutes  
Viscosity cps (@ 77F): 900  
Ratio by Mix Volume: 5/1  
Ratio by Mix Weight: 5.5/1  
Elongation %: 2.5  
Thermal Shock, 10 Cycles: Passes

**2460/2153:**

Peak Exotherm (100g @ 77F): 240F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 5 Hours  
Pot Life (@ 77F): 20 Minutes  
Viscosity cps (@ 77F): 500  
Ratio by Mix Volume: 5/1  
Ratio by Mix Weight: 5.8/1  
Elongation %: 2.8  
Thermal Shock, 10 Cycles: Passes

**2461/2154:**

Peak Exotherm (100g @ 77F): 245F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 3 Hours  
Pot Life (@ 77F): 16 Minutes  
Viscosity cps (@ 77F): 700  
Ratio by Mix Volume: 5/1  
Ratio by Mix Weight: 5.27/1  
Elongation %: 2.3  
Thermal Shock, 10 Cycles: Passes

**2461/2155:**

Peak Exotherm (100g @ 77F): 230F  
Cure Time @ 77F: 24 Hours  
Tack Free (@ 77F): 6 Hours  
Pot Life (@ 77F): 30 Minutes  
Viscosity cps (@ 77F): 750  
Ratio by Mix Volume: 5/1  
Ratio by Mix Weight: 5.72/1  
Elongation %: 2.7  
Thermal Shock, 10 Cycles: Passes

**ITW DEVCON: DEVCON Epoxy Products:****Aluminum Liquid (F-2):**

Aluminum-filled liquid epoxy for applications requiring an aluminum finish.

- \* For casting cost-efficient molds, patterns and tools.
- \* Can be cast over models for accurate reproduction of details
- \* Non-rusting cured material can be machined, drilled or tapped using conventional metal working tools.

**Aluminum Putty F:**

Aluminum-filled epoxy putty for effective, cost-efficient repairs to aluminum castings, parts and equipment.

- \* Two-component compound mixes and applies easily.
- \* Bonds to aluminum and many other metals, as well as concrete and thermoset plastics.
- \* Makes repairs that are non-rusting.

**ALUMINUM VERY LIQUID (F-3):**

Low viscosity, aluminum-filled epoxy liquid for achieving fine detail reproduction in molds and patterns.

- \* Easy mixing and pouring, two-component liquid compound for the casting of thick sections.
- \* Low viscosity permits reproduction of delicate or intricate parts and fine surface finish details.
- \* Easier to vacuum degas; for mold/pattern making.

**AR BARRIER 200:**

A room temperature cured, 100% solids epoxy system designed to protect surfaces against severe chemical attack.

- \* Low viscosity achieves 100% contact with prepared surfaces.
- \* Easily applied with a brush or roller.
- \* Excellent adhesion to metal, ceramic and concrete surfaces.
- \* Excellent chemical resistance to concentrated acids.
- \* Temperature resistance to 200F.

**BRONZE PUTTY:**

BRONZE PUTTY is a bronze filled epoxy for repairing, rebuilding and maintaining bronze parts and equipment.

- \* Chemically accepted for use in USDA inspected plants.
- \* Bonds to ferrous and non-ferrous metals.
- \* Can be machined.
- \* Excellent chemical resistance.

**BRUSHABLE CERAMIC:**

BRUSHABLE CERAMIC is a high-performance, high-density, ceramic-filled, brushable epoxy to seal and protect new or repaired surfaces from cavitation, erosion, and wear.

- \* Low viscosity achieves 100% contact with prepared surfaces
- \* Ideal for rebuilding worn areas less than 1/16" deep
- \* Easily applied using a short-bristle brush
- \* Excellent chemical resistance
- \* Temperature resistance to 350F

**ITW DEVCON: DEVCON Epoxy Products (Continued):**

**CARBIDE PUTTY:**

Economical protection against abrasion, chemicals, and high temperatures.

- \* Carbide-filled epoxy putty is extremely resistant to abrasion.
- \* Excellent resistance to chemicals in temperatures to 250F.
- \* Excels in large scale applications that require economy as well as long life in demanding industrial environments.

**Ceramic Repair System:**

Ceramic Repair System is a high performance, trowelable, ceramic-filled epoxy formulation for rebuilding worn or damaged equipment to original performance specifications or better.

- \* Excellent resistance to corrosion, cavitation, chemicals and erosion
- \* Vertical or overhead repairs are easily done due to non-sag formulations
- \* Excellent chemical resistance
- \* Temperature resistance to 350F

**Concrete Primer:**

Concrete Primer is a 100% solids epoxy primer, that enhances adhesion by penetrating into the concrete substrate, sealing porous surfaces and reducing concrete outgassing.

- \* A primer for properly prepared concrete surfaces.

**EPOXY COAT 7000 No Voc:**

A 100% solids, 2-component, self-leveling, No Volatile Organic Content epoxy floor coating that meets OSHA and state VOC regulations.

- \* High performance, seamless floor coating system
- \* Extremely hard wearing and durable surface
- \* Can be applied to smooth or mildly spalled concrete where a level, high-gloss finish is desired
- \* Available in three colors

**EPOXY COAT 7000 No Voc Resurfacer Additive:**

A special aggregate mix for EPOXY COAT 7000 No Voc for resurfacing concrete floors. Recommended thickness from 50 mils DTF to 250 mils DFT (1/4). 100% solid system can be applied to moderately rough and spalled concrete to restore to a level surface. Can be easily applied with a squeegee.

**EPOXY COAT 7500:**

EPOXY COAT 7500 is a two-component epoxy coating for interior or exterior application on steel, concrete, or wood surfaces.

**ITW DEVCON: DEVCON Epoxy Products (Continued):****EPOXY PLUS:**

A toughened structural adhesive with superior impact, peel and fatigue resistance.

- \* Fills large gaps
- \* Has high tensile strength
- \* Very high lap shear strength
- \* Will bond roughed surfaces

**EPOXY SEALER 100:**

EPOXY SEALER 100 is a 100% solids, 2 component epoxy coating system for sealing and water proofing concrete, masonry and wood surfaces.

**FASMETAL 5:**

FASMETAL 5 is a high-performance, fast curing 100% solids epoxy for emergency and cold weather repairs. Thick putty consistency provides excellent non-sag performance on vertical and overhead surfaces.

- \* Repair most equipment while operating.
- \* Can be applied in temperatures as low as 40F.
- \* Fully cured in 1 hour at room temperature.
- \* Temperature resistance to 250F.

**FLOOR GRIP:**

FLOOR GRIP is an epoxy compound with silicon carbide granules for skidproofing where slippery conditions exist. FLOOR GRIP will bond to damp surfaces.

**High Temperature Repair:**

A metallic-filled, heat-cured, machinable epoxy repair material/adhesive.

- \* For use in applications where temperature exceed 350F.
- \* Upper temperature limit of 400F continuous with 450F intermittent.
- \* Hardens at room temperature (1-1/2-2 hrs. in 1 lb. mass), but requires post-cure to achieve maximum physical and thermal properties.

**Non-skid 3500:**

Non-Skid 3500 is an epoxy-based 2-part coating system for areas where a durable non-skid finish is required.

**PLASTIC STEEL Liquid B:**

A steel-filled, liquid epoxy for general maintenance and repairs. For tooling, mold-making and leveling.

- \* Two-component system applies quickly and easily.
- \* Can be cast over models for accurate detail reproduction.
- \* Can be machined to close tolerances.

**ITW DEVCON: DEVCON Epoxy Products (Continued):**

**PLASTIC STEEL Putty (A):**

A steel-filled epoxy putty for general maintenance and repairs. For filling, rebuilding, and bonding metal surfaces.

- \* Applies easily, needs no special tools
- \* Bonds to most metals, concrete and some plastics
- \* Use conventional metalworking tools to machine finished repairs
- \* Excellent resistance to oil, gasoline, water, and many chemicals
- \* Qualified under Mil. Spec. DOD-C-241768B (SH), Type I and II

**SAFE-T-GRIT:**

An Anti-skid Aggregate added to Epoxy Sealer 100, EPOXY COAT 7500, EPOXY COAT 7000 No Voc, and EPOXY COAT 8000.

- \* Simply add to the Floor Saver coatings at desired proportion to achieve desired profile.
- \* Add ANTI-SKID while mixing coating or broadcast to desired texture.

**Special F Epoxy:**

Aluminum-filled, high strength, bonding, patching and sealing product.

- \* Bonds to aluminum and other metals, ceramics, wood, concrete, or glass in any combination.
- \* Cured bonds have excellent tensile impact, flexural and dielectric strength plus good chemical resistance.
- \* Cures to a rigid bond that can be machined, drilled, tapped, ground, or sanded.

**STAINLESS STEEL PUTTY:**

STAINLESS STEEL PUTTY is a stainless steel filled, room temperature cured, epoxy for rebuilding and repairing stainless steel equipment. Makes non-rusting repairs in dairies, food processing and chemical plants.

- \* Chemically accepted for use in USDA inspected plants
- \* Bonds to ferrous and non-ferrous metals
- \* Can be machined
- \* Excellent chemical resistance

**SURE SHOT 1-MINUTE EPOXY:**

1-MINUTE EPOXY is a fast-curing liquid epoxy for general purpose use where a fast setup time is needed. It forms a light yellow, rigid bond or coating within 5 minutes!!

- \* Easy mixing 1:1 ratio
- \* Good dielectric
- \* Good solvent resistance
- \* Instant bond

**ITW DEVCON: DEVCON Epoxy Products (Continued):****Titanium Putty:**

Titanium Putty provides durable repairs of worn or damaged precision parts. This high-performance epoxy can be drilled, tapped, turned or machined with conventional cutting tools.

- \* Easily applied using a trowel or a spatula.
- \* Smooth, non-rusting, machinable metallic finish offers unequalled capability for precision repairs.
- \* Excellent resistance to a broad range of chemicals.
- \* Compression strength of 18,000 psi.
- \* Temperature resistance to 350F.

**Underwater Repair Putty (UW):**

Makes effective repairs in chemically wet environments or even underwater.

- \* Special formulation is non-rusting.
- \* Applies and cures in temperatures down to 40F.
- \* Epoxy putty penetrates through moisture to bond securely to steel, iron, aluminum, brass, bronze, concrete, wood and some plastics.
- \* May be used in salt/fresh water.

**Wear Resistant Liquid (WR):**

Ceramic-filled epoxy liquid where exceptional durability and ruggedness are required.

- \* For casting metal forming dies and tracing masters.
- \* Combines low-friction performance with outstanding wear resistance.
- \* No shrink curing assures reproduction of critical details.

**Wear Resistant Putty (WR2):**

A ceramic-filled epoxy putty that provides repairs with a smooth, low-friction finish.

- \* Rebuilds and protects interfacing metal surfaces such as machine ways and flanges that are subjected to wear.
- \* Repairs steel, iron, aluminum, brass, bronze, concrete and some plastics.
- \* Protects metal from bi-metallic corrosion.

**2-TON EPOXY:**

An extremely strong, water-resistant adhesive. Cures fast for a strong, non-shrinking rigid bond.

- \* Fills poorly-mated joining surfaces
- \* Has excellent adhesion
- \* Provides good impact strength
- \* Resistant to gasoline, oil and chemicals

**ITW DEVCON: DEVCON Epoxy Products (Continued):**

**5-MINUTE Epoxy:**

5-MINUTE Epoxy is a rapid-cure, medium viscosity epoxy for general purpose use. It bonds rigid, durable substrates such as metals, ceramics, glass, concrete, and wood in all combinations. It forms a clear, hard, rigid bond or coating when fully cured in 4 hours.

- \* Rapid 7-minute fixture
- \* Hard, durable bonds
- \* Easy mixing, 1:1 ratio
- \* Good dielectric strength
- \* Good solvent resistance

**5-MINUTE Gel:**

5-MINUTE Gel is a very high viscosity, non-sagging epoxy that has high tensile strength and good solvent resistance. It bonds rough textures like concrete, as well as smooth, glass-like surfaces. Rapid cure allows handling in 7 minutes and use within an hour.

- \* Non-sag, stay-in-place form
- \* Fills gaps
- \* Rapid cure
- \* High strength to 2,500 psi
- \* Color coded mixing
- \* Easy to meter and mix



**K-POXY: Compounds for Maintenance-Repair-Tooling:**

**Steel Putty:**

For repairing pipes, tanks, valves, engine blocks, and blow holes. Makes drill jigs, holding and placement fixtures. Machinable - can be drilled, tapped, milled, and sawed.

**Steel Liquid:**

Same as above but can be poured. Uses include leveling, forming dies, filling hidden blow holes.

**Rapid Steel Putty:**

Fast hardening for emergency but permanent repairs and lower temperatures

**Epoxy Putty Sticks:**

Steel reinforced, hand-moldable epoxy. Fills holes, stops leaks. Hardens in 20 minutes.

**Clear Epoxy Adhesive:**

Standard cure - ultimate strength bonding of wood, fiberglass, metal glass, masonry, and some plastics.

**Fast Clear Adhesive:**

5 minute cure - for bonding wood, fiberglass, metal glass, masonry, and some plastics.

**White Adhesive Filler:**

Very strong, hard, and glossy: K-300  
Fast white filler: K-320

**Aluminum Putty:**

For repairing aluminum tanks, castings, pipes, engine blocks, patterns, and models.

**Fast Aluminum Kit:**

For fast repairs of aluminum.

**Heat Resistant Aluminum Putty:**

Full strength up to 400F

**Aluminum Liquid:**

For duplicate patterns, models, molds, etc. - pours easily providing very smooth surface.

**Wear Resistant Putty:**

Excellent for pump casings, impellers, keyways, and wear plates. Building up machine beds, shafts, slow speed bearings, High chemical resistance.

**Wear Resistant Liquid:**

Same properties and uses as K-500 except that it can be poured.

**K-POXY: Compounds for Maintenance-Repair-Tooling (Continued):**

**Ceramic Bead Filled Putty:**

For lining chutes, screw conveyors, pipes, elbows, cyclones, mills, hoppers, and other surfaces subject to severe abrasion. Temp. resistant up to approx. 250F (121C).

**Heat Resistant Ceramic Bead Filled Putty:**

Same types of applications as above, but where high temperatures are encountered--400F (204C).

**Titanium Putty:**

Exceptional wear and corrosion resistance. Rebuilds worn shafts, keyways, hydraulic rams, and other metal surfaces. Very high compressive strength. Excellent chemical resistance.

**Wet Surface Putty:**

Repairs pipes, tanks, and equipment when impossible to dry the surface. Widely used for underwater repairs.

**Bronze Putty:**

Repairs brass, bronze, and copper pipes, tanks, valves, vats, and other equipment. Fills blow holes in bronze castings.

**Stainless Steel Putty:**

For repairing stainless steel pipes, valves, tanks, vats, machinery and food industry applications.

**Slip-Not:**

Non-skid compound for personal safety on ladders, scaffolding, loading docks, piers, etc.

**Floor Patch:**

For repairing cracks and gouges in concrete floors. Wherever there is maximum wear such as thresholds and heavy traffic areas.

**K-POXY Sealer:**

Tough protective sealer for walls, floors, concrete tanks and pipes. Prevents seepage. Adheres to damp surfaces, cures at 40F (4.5C).

**HARD COAT:**

High performance, brushable ceramic coating. Protects tube sheets, water boxes, impellers, pump housings, tanks, and other metal surfaces against corrosion, abrasion, and harsh chemicals. 100% solids--no solvents.

**HARD COAT Filler:**

Smooth, non-sagging paste for filling and leveling prior to application of HARD COAT. Can also be used alone. 100% solids--no solvents.

**Barrier Coating:**

Can be applied to damp surfaces under cool conditions. Particularly suitable for damp and cool concrete walls, floors, foundations, piping and tanks.

**K-POXY: Handy Repair Kits:**

- \* Ideal - for smaller maintenance and repair applications.
- \* Compact - several kits will fit into average tool box.
- \* Economical - more repairs for the money.
- \* Easy-To-Use - A. clean and dry the surface to be repaired  
B. squeeze out equal volumes of resin and hardener.  
C. Mix thoroughly and apply.
- \* Tremendous adhesion - to all metal, wood, ceramic, concrete and masonry (not to polyethylene, teflon or polypropylene).

**K-150:**

**Standard Steel Kit:**

For repairing pipes, tanks, valves, pumps, engine blocks, etc. Can be machined, sanded, drilled and tapped. Sets in approximately 40 minutes.

**K-155:**

**Fast Steel Kit:**

For rapid repair of steel pipes, tubing, valves, castings, and motor blocks. Can be machined, sanded, drilled and tapped. Sets in approximately 4-7 minutes.

**K-250:**

**Special Clear Kit:**

High strength adhesive for permanent bonding of wood, fiber-glass, metal, glass, masonry, and some plastics. Sets in approximately 40 minutes.

**K-255:**

**Fast Clear Kit:**

For fast bonding of wood, fiberglass, metal, glass, masonry, ceramics and some plastics. Sets in approximately 4-7 minutes.

**K-450:**

**Standard Aluminum Kit:**

For repairing aluminum and copper tubing, models, patterns, aluminum engine blocks and castings. Can be machined, sanded, drilled and tapped. Sets in approximately 40 minutes.

**K-455:**

**Fast Aluminum Kit:**

For fast repairs of aluminum and copper pipes, valves, tubing, models, patterns; and castings. Can be machined, sanded, drilled and tapped. Sets in approximately 4-7 minutes.

**LOCTITE CORP.: Epoxy Products:**

**LOCTITE Weld:**

Cold Weld Bonding Compound

LOCTITE Weld is a two-part, very fast curing, high strength, general purpose, adhesive and filler system. It repairs, fills, and bonds to iron, steel, brass, bronze, aluminum and copper. Once cured it can be drilled, tapped, threaded or filed.

**Typical Applications:**

Cracked transmission cases, chipped heads, rear end castings, cracked blocks, cracked intake manifolds, damaged keyways, split stampings, cracked battery cases.

**Product Benefits:**

Easy to Use

\* No heating

Fast, Reliable

\* Holds in 10-15 minutes

\* Usable in 30 minutes

\* Good moisture resistance

\* Good resistance to fuels and oils

\* Withstands extreme temperatures

Safe to Use

\* Non-flammable

**LOCTITE MASTER MEND E-POX-E System:**

General Purpose Quick-Set

MASTER MEND E-POX-E Quick-Set is a two-part, fast curing, clear epoxy glue system.

**Typical Applications:**

MASTER MEND E-POX-E Quick-Set can be used to bond rigid materials including metals, concrete, marble, wood, etc.

**Product Benefits:**

\* Will not shrink

\* Fast curing

\* No clamping needed

\* Fills gaps

\* Nearly colorless

**LOCTITE CORP.: Epoxy Products (Continued):****DURO MASTER MEND E-POX-E System for Glass and Ceramics:**

MASTER MEND E-POX-E for Glass and Ceramics is a two-part, fast curing, clear epoxy glue system.

**Typical Applications:**

MASTER MEND E-POX-E for Glass and Ceramics can be used to bond rigid materials including glass and ceramic.

**Product Benefits:**

- \* Will not shrink
- \* Fast curing
- \* No clamping needed
- \* Fills gaps
- \* Nearly colorless

**DURO MASTER MEND E-POX-E System for Steel & Concrete:**

MASTER MEND E-POX-E for Steel & Concrete is a two part, very fast curing, high strength, general purpose, adhesive and filler system.

**Typical Applications:**

DURO MASTER MEND E-POX-E for Steel & Concrete is a versatile adhesive for all around use. It will bond to metals, ceramics, concrete, wood and many plastics. Once cured it can be drilled, tapped, threaded or filled.

**Product Benefits:**

- Easy to use.
- \* No heating
- Fast, Reliable.
- \* Holds in 10-15 minutes.
- \* Useable in 30 minutes.
- \* Good moisture resistance.
- \* Good resistance to household chemicals.
- \* Withstands extreme temperatures.
- Safe to use.
- \* Non-flammable.

**DURO MASTER MEND E-POX-E System for Copper & Brass:**

MASTER MEND E-POX-E System for Copper & Brass is an epoxy product developed to bond to copper and brass. The two-part epoxy system will cure to a copper color when mixed.

**Product Benefits:**

- \* Easy to use.
- \* Fast room temperature cure.
- \* Dry to touch in 10 minutes.
- \* Bonds to copper and brass with excellent adhesion.
- \* Makes cosmetic repairs on copper parts.

**MAGNOLIA PLASTICS, INC.: Adhesives:**

**MAGNOBOND 24:**

Feature: Flexible  
Good for bonding large sections of sheet metal. Bonds well to hard-to-stick items. Non-asbestos.

**MAGNOBOND 55-2:**

Feature: General Purpose  
Two part paste. Good strength.

**MAGNOBOND 56:**

Feature: Fiberglass Adhesive  
General purpose adhesive for fiberglass joints. Non-asbestos.

**MAGNOBOND 60:**

Feature: Fast Set  
High bond strength. Good water resistance.

**MAGNOBOND 6124:**

Feature: Single Component  
For bonding sheet metal. Meets Federal Regulation 221.  
Excellent general purpose single component system. Cures at 220F.

**MAGNOBOND 6125:**

Feature: Single Component  
Single component adhesive for bonding school bus panels.  
For Federal Regulation 221.

**MAGNOBOND 6150:**

Feature: High Strength  
Very high lap shear and peel strength. Non-asbestos.

**MAGNOBOND 6175NM:**

Feature: Single Component  
Non-asbestos. High strength. Bonds to poorly treated surfaces.

**MAGNOBOND 6289:**

Feature: Chemical Resistant  
Outstanding acid, solvent and high temperature resistance.

**MAGNOBOND 6296:**

Feature: Single Component High Temperature  
Good adhesive properties are maintained at temperatures in excess of 400F.

**MAGNOLIA 6369:**

Feature: 375F Temperature Resistance  
Long pot life, room temperature cure, good high temperature properties.

**MAGNOLIA PLASTICS, INC.: Adhesives (Continued):**

**MAGNOBOND 6371:**

Feature: Low Viscosity  
For injection repair of composite structures.

**MAGNOBOND 6375:**

Feature: High Peel Adhesive for Steel & Aluminum Panels  
Federal Regulation 221. Long pot life.

**MAGNOBOND 6383:**

Feature: High Temperature - Good Hot/Wet Strength  
Long pot life. Excellent for liquid shims. Very thixotropic.  
Non asbestos.

**MAGNOBOND 6384:**

Feature: High Temperature - Long Pot Life  
Excellent handling characteristics. Will not run or sag.

**MAGNOBOND 6388-3:**

Feature: 300F Temperature Resistance  
Cures faster than MAGNOBOND 6388-1. Good adhesion to 300F.  
Long pot life. No asbestos.

**MAGNOBOND 6391, 6392, 6396 and 6398:**

Feature: Tough room temperature cure  
Tough. Room temperature curing adhesive for bonding composites.

**MAGNOBOND 6511:**

Feature: Golf Club Adhesive  
High strength adhesive. Bonds to steel, copper, brass, aluminum, stainless steel, graphite, titanium, wood, boron, composites, ABS and other golf club alloys.

**MAGNOLIA PLASTICS, INC.: Construction Adhesives and Coatings:**

**Traffic Loop Sealers:**

**MAGNOLOOP I:**

The original. Used since 1969.

**MAGNOLOOP II:**

Filled system. Use with automatic equipment.

**Airport Lighting Sealers:**

**MAGNOBOND 6504:**

Asphalt or concrete. Thin for saw cuts - P-606.

**MAGNOBOND 6507:**

Asphalt or concrete. Thick for lights - P-606.

**Coatings:**

**MAGNOBOND 720:**

Two part, room temperature cure, general purpose coating-- good chemical resistance.

**MAGNOBOND 750:**

Single component, phenolic cured epoxy that is heat activated. Good high temperature and chemical resistance.

**MAGNOBOND 932:**

Clear table-top coating. Brings out the grain.

**Concrete Adhesives:**

**MAGNOBOND 3:**

Old to new concrete adhesive. Passes Arizona Cylinder Test.

**MAGNOBOND 36:**

Cures underwater. Bonds fiberglass jackets to bridge pilings. Coats concrete walls for water and damp proof. Use as intrusion grout.

**MAGNOBOND 40:**

Rapid set marker adhesive.

**MAGNOBOND 6036:**

High performance road button adhesive. Meets ASHTO M-27, Type IM. Use this where good water resistance is needed.



**MAGNOLIA PLASTICS, INC.: Electrical Systems:****3068:**

Temperature Class: H  
Major Use: Casting and Encapsulating  
Minimum Cure Temp.: 150C  
For high temperature potting and encapsulating.

**3071:**

Temperature Class: B  
Major Use: Polycarbonate Capacitors  
Minimum Cure Temp.: 20C  
For polycarbonate capacitors. Cures at room temperature yet gives good electricals at 125C. Does not attack polycarbonate film.

**3075:**

Temperature Class: B  
Major Use: Capacitors  
Minimum Cure Temp.: 20C  
Capacitor end seal. Good air release. Used with many different hardeners.

**3106:**

Temperature Class: B  
Major Use: Box Capacitors  
Minimum Cure Temp.: 20C  
For automatic production of box capacitors. Long pot life and fast cure. Meets UL 94-V0.

**3128:**

Temperature Class: B  
Major Use: Capacitors  
Minimum Cure Temp.: 20C  
Capacitor end seal. Meets UL 94-V0.

**3227:**

Temperature Class: B  
Major Use: Coil Potting  
Minimum Cure Temp.: 20C  
Low cost potting, casting and encapsulating.

**3241:**

Temperature Class: F  
Major Use: Encapsulating  
Minimum Cure Temp.: 155C  
Single component encapsulating compound.

**MAGNOLIA PLASTICS, INC.: Electrical Systems (Continued):**

**3265:**

Temperature Class: B  
Major Use: Potting  
Minimum Cure Temp.: 20C  
Very good thermal shock. Semi-flexible. General purpose potting, casting and encapsulating.

**3292-3:**

Temperature Class: B  
Major Use: Potting  
Minimum Cure Temp.: 20C  
Lightweight potting compound.

**3347:**

Temperature Class: F  
Major Use: Impregnating  
Minimum Cure Temp.: 125C  
Single component impregnating. Good electrical properties at elevated temperatures.

**3360:**

Temperature Class: B  
Major Use: Potting  
Minimum Cure Temp.: 85C  
Potting compound. Used with sand. Excellent resistance to water, gasoline and oil. Shore A 80. Top protection.

**3376:**

Temperature Class: F  
Major Use: Encapsulating  
Minimum Cure Temp.: 85C  
Rigid potting. QPL listed for Mil-I-16923.

**3377:**

Temperature Class: F  
Major Use: Potting and Encapsulating  
Minimum Cure Temp.: 85C  
Flame retardant potting compound. Good hydrolytic stability.

**3378:**

Temperature Class: F  
Major Use: Potting & Encapsulating  
Minimum Cure Temp.: 85C  
For automatic machine dispensing.

**3390:**

Temperature Class: F  
Major Use: Potting  
Minimum Cure Temp.: 85C  
Dielectric gel. Very low embedment stress at -40C. Does not revert after 100 hours in 15 psi steam.

**MAGNOLIA PLASTICS, INC.: Electrical Systems (Continued):****3445:**

Temperature Class: F  
Major Use: Encapsulating  
Minimum Cure Temp.: 125C  
Filled encapsulating compound. Semi-rigid.

**3481:**

Temperature Class: F  
Major Use: Box Capacitor  
Minimum Cure Temp.: 85C  
Long pot life. Used in automatic capacitor production.

**3500:**

Temperature Class: F  
Major Use: Encapsulating & Impregnating  
Minimum Cure Temp.: 125C  
Cycloaliphatic. Good penetration.

**3503:**

Temperature Class: F  
Major Use: Casting and Encapsulating  
Minimum Cure Temp.: 125C  
Cycloaliphatic. Excellent thermal shock and outdoor weathering. Rigid.

**3900/3901:**

Temperature Class: B  
Major Use: Circuit Board Coating  
Minimum Cure Temp.: 20C  
Printed circuit board coating. Good moisture resistance.

**3913:**

Temperature Class: B  
Major Use: Dip Coat  
Minimum Cure Temp.: 20C  
Dip coat for large parts. Impact resistant. Tough.

**3974:**

Temperature Class: B  
Major Use: Dip Coat  
Minimum Cure Temp.: 20C  
Flame retardant capacitor dip coat.

**3997:**

Temperature Class: F  
Major Use: Encapsulating  
Minimum Cure Temp.: 85C  
Semi-rigid potting. Good thermal shock.

**MAGNOLIA PLASTICS, INC.: General Purpose Epoxy Resins and Curing Agents:**

**Resin:**

**2014-1:**

Type: Unmodified Bis A

Equivalent Weight: 190

Remarks: Standard epoxy resin. Good high temperature properties, good adhesion, good water and chemical resistance.

**2014:**

Type: Diluted Bis A

Equivalent Weight: 195

Remarks: Lower viscosity than 2014-1. Good penetration. Good water resistance.

**Curing Agents:**

**230:**

Type: Amine

Ratio with 2014 or 2014-1: 25 pph

Pot Life: 6 minutes

Remarks: Fast cure and low viscosity.

**235:**

Type: Amine Adduct

Ratio with 2014 or 2014-1: 25 pph

Pot Life: 15 minutes

Remarks: High strength. Safety hardner.

**249-2:**

Type: Amide-amine

Ratio with 2014 or 2014-1: 35 pph

Pot Life: 22 minutes

Remarks: Lower exotherm than 235.

**346:**

Type: Polyamide

Ratio with 2014 or 2014-1: Use 50 pph or 100 pph

Pot Life: 2 hours

Remarks: Good adhesion. Cures overnight.

**359:**

Type: Aromatic Amine

Ratio with 2014 or 2014-1: 25 pph

Pot Life: 22 minutes

Remarks: Room temperature cure with good high temperature properties.

**360-L:**

Type: Aromatic

Ratio with 2014 or 2014-1: 25 pph

Pot Life: 60 minutes

Remarks: Outstanding heat resistance.

**544:**

Type: Anhydride

Ratio with 2014 or 2014-1: 85 pph

Pot life: >6 hours

Remarks: Low viscosity. Good heat resistance.

**MAGNOLIA PLASTICS, INC.: MAGNOLIA Conductive Adhesives:**

**3870:**

Silver Filled

Moderate cost yet excellent conductivity and adhesion.

**8000:**

Silver Filled

High silver loading, 2 part room temperature.

**8001:**

Silver Filled

B-Stage adhesive. Low ionic content.

**8002:**

Silver Filled

Single component, low chloride, fluid, 100% reactive.

**8003:**

Silver Filled

100% reactive. High Tg. Good moisture resistance.

**8004:**

Silver Filled

Outstanding adhesive strength.

**8005:**

Silver Filled

Room temperature cure. High bond strength.

**MAGNOLIA PLASTICS, INC.: Syntactics:**

**MAGNOBOND 66-4:**

MAGNOBOND 66-4 is a high strength potting/adhesive compound used in the aerospace and aircraft industry for insert potting and bushing setting in honeycomb panels.

**MAGNOBOND 67, Parts A and B:**

Epoxy Paste Syntactic Foam

A paste form, trowellable syntactic foam specifically designed for honeycomb sandwich fill applications.

**MAGNOBOND 68:**

MAGNOBOND 68 is an extrudable syntactic epoxy foam designed for honeycomb potting applications where a non slumping, paste-like product works best.

**MAGNOBOND 69-9:**

Extrudable Syntactic Foam

MAGNOBOND 69-9 is a semi-thixotropic lightweight epoxy potting compound used for potting applications in honeycomb panels.

**MAGNOBOND 79-3:**

A lightweight syntactic foam system with a superior strength to weight ratio, designed for honeycomb sandwich edge fill application.

**MAGNOBOND 86 and 87:**

MAGNOBOND 86 and MAGNOBOND 87 are high strength syntactic foam products having excellent properties between -67F and +350F.

**MAGNOBOND 90, Parts A and B:**

MAGNOBOND 90, Parts A and B, is a pourable syntactic foam system light in weight with a superior strength-to-weight ratio for insert potting and related applications to the production of honeycomb panels for aircraft structures.

**MAGNOBOND 91:**

MAGNOBOND 91 is a two part room temperature curing, self extinguishing, low density epoxy potting compound.

**MAGNOBOND 92:**

MAGNOBOND 92 is a high strength flame retardant potting system for metal, plastic and paper honeycomb core.

**MAGNOBOND 94 and 95:**

MAGNOBOND 94 and 95 are high strength epoxy potting, shimming and bonding compounds designed for use between -67F and +350F.

**MAGNOBOND 99, Parts A and B:**

MAGNOBOND 99, Parts A and B, is a two component epoxy syntactic potting compound for robotic application.

**MAGNOLIA 6663 and 6664:**

MAGNOLIA 6663 and 6664 are high strength two part epoxy potting compound designed to meet the requirements of General Dynamics Specification FMS 1026D.

**MAGNOLIA PLASTICS, INC.: Tooling Compounds:**

**MAGNOBOND 56:**

MAGNOBOND 56 A & B is a high strength epoxy adhesive designed for bonding fiberglass panels to a wide variety of substrates.

**MAGNOBOND 60:**

MAGNOBOND 60 is a fast acting epoxy/mercaptan adhesive system designed for rapid development of bond strength.

**MAGNOBOND 6124 and 6125:**

MAGNOBOND 6124 is an intermediate temperature (250-300F) curing single component epoxy adhesive meeting the requirements of Federal Regulation 221 covering the characteristics to be met for adhesives used in the bonding of metal panels in the manufacture of school buses.

**MAGNOLIA 6150:**

MAGNOLIA 6150, A and B is a two part adhesive system designed to have high peel strength at room temperature and excellent lap shear values at room temperature and at 180F.

**MAGNOBOND 6175-NM:**

MAGNOBOND 6175-NM is a non metallic filled single component epoxy adhesive system designed for those applications requiring high bond strength and/or electrical insulation.

**MAGNOBOND 6289:**

MAGNOBOND 6289 is a two part epoxy resin designed for bonding applications requiring outstanding chemical and temperature resistance. This product is used for sealing filters which operate under extremely harsh conditions.

**MAGNOBOND 6296:**

MAGNOBOND 6296 is a single component epoxy adhesive designed for bonding applications requiring high temperature service.

**MAGNOLIA 6369, A and B:**

MAGNOLIA 6369, Parts A and B, is a two part epoxy adhesive designed to have excellent properties at elevated temperatures.

**Compound 6371:**

6371 is a fluid, clear, epoxy compound designed for injection repair of composite structures. This product cures at room temperature and gives good strength properties beyond 300F.

**MAGNOLIA PLASTICS, INC.: Tooling Compounds(Continued):**

**MAGNOBOND 6375:**

MAGNOBOND 6375, A & B is a two-part adhesive system designed for bonding steel and aluminum panels.

**MAGNOLIA 6383:**

6383 is a two part epoxy designed for bonding and shimming applications requiring good elevated temperature properties. 6383 has a smooth, non-sagging, thixotropic paste consistency.

**MAGNOLIA 6384:**

A two part epoxy adhesive system designed to cure at room temperature yet have good high temperature properties and long working life.

**MAGNOBOND 6388-3 and 6388-5:**

MAGNOBOND 6388-3 is a two part epoxy adhesive/shim system designed to have good bond strength over a wide range of temperatures (-67F to 300F). 6388-3 can be cured at room temperature or accelerated with heat. This system meets the requirements of FMS 1048-D. A more fluid, injection grade version called 6388-5 is available. It has all the same outstanding properties as 6388-3.

**MAGNOBOND 6391, 6392, 6396 and 6398:**

MAGNOBOND 6391, 6392, 6396 and 6398 are two part epoxies designed for bonding metals and composite structures and having good properties at high and low temperatures when using a room temperature cure.

**MAGNOLIA 6511:**

MAGNOLIA 6511, A & B is a two part epoxy adhesive for golf club bonding applications. This adhesive bonds to steel, stainless steel, aluminum, graphite, titanium, wood, boron, composites, ABS (use 127 Primer), copper, brass and other golf club alloys.

**Casting Resins:**

**1012:**

Maximum Service Temperature: 180F-220F

Remarks: Aluminum filled general purpose casting. 1012 features extremely accurate detail pick-up because of its excellent wetting ability.

**1032/300-1:**

Maximum Service Temperature: 180F

Remarks: Resilient casting for hammer dies. Flexibility can be varied by changing the ratio of "A" to "B".



**MAGNOLIA PLASTICS, INC.: Tooling Compounds (Continued):****Casting Resins (Continued):****1035:**

Maximum Service Temperature: 200F-275F

Remarks: Ceramic filled. Very good abrasion resistance.

**1039:**

Maximum Service Temperature: 200F-275F

Remarks: General purpose steel filled casting resin. Used with several different curing agents to give a wide variety of properties. Outstanding system for vacuum forming dies.

**1045:**

Maximum Service Temperature: 275F-300F

Remarks: High temperature casting resin. Readily machined. For general purpose castings in the range of 275-300F.

**3068:**

Maximum Service Temperature: 400F

Remarks: High temperature resistance. High modulus.

**Mass Casting Resins for the Aircraft and Automobile Industries:****6004:**

Maximum Service Temperature: 200F

Remarks: High impact strength mass casting resin.

**6007:**

Maximum Service Temperature: 200F

Remarks: For very large metal forming tools. Extremely low shrinkage. 22,000 lb. tool used to make luxury car hood. High strength in tension, flexural and compression. Good impact strength.

**6008:**

Maximum Service Temperature: 250F

Remarks: Fast curing, good impact system. Sets in 24 hours. Non-MDA.

**6019:**

Maximum Service Temperature: 200F-250F

Remarks: Magnolia's Carbide Coat facing is used with all of Magnolia's mass casting system to extend tool life.

**MAGNOLIA PLASTICS, INC.: Tooling Compounds (Continued):**

**Mass Casting Resins for the Aircraft and Automobile Industries (Continued):**

**6025:**

Maximum Service Temperature: 350F

Remarks: High temperature version of 6017. For compression and injection dies.

**MAGNO-CERAM and SUPER-CERAM:**

Maximum Service Temperature: 350F/425F

Three part casting system consisting of resin, curing agent and ceramic grain. Quickly produces injection and compression dies having low shrinkage, good dimensional stability and good thermal conductivity. Low coefficient of thermal expansion enables embedment of reinforcing rods and cooling or heating coils.

**Laminating Resins and Service Coats:**

**Surface Coat: 1054/235-2:**

Maximum Service Temperature: 220F

Remarks: Fast setting system for facing wet plaster.

**Resin: 2004:**

**Surface Coat: 1054 or 1058W:**

Maximum Service Temperature: 180F

Remarks: Smooth buttery surface coat. Good wetting resin. General purpose system. Time tested.

**Resin: 2019:**

**Surface Coat: 1052:**

Maximum Service Temperature: 200F

Remarks: Low viscosity laminating/surface coat combination gives good properties up to 200F with a room temperature cure.

**Resin: 2026:**

**Surface Coat: 1066-6:**

Maximum Service Temperature: 275F

Remarks: Used for "250F" aircraft tooling. Tough, strong-- doesn't age, harden, crack or craze. Use wet lay up or vacuum bag technique.

**Resin: 2030:**

**Surface Coat: 1065-5:**

Maximum Service Temperature: 375F

Remarks: Heat deflection temperature is over 400F. Low viscosity for best wetting.

**Resin: 2032:**

Maximum Service Temperature: 500F

Remarks: Long term stability at temperatures up to 500F.

**MAGNOLIA PLASTICS, INC.: Tooling Compounds (Continued):**

**Splining and Patching:**

**1077-1:**

Service Temperature: 200F-250F

Remarks: Tough and buttery. General purpose splining. Used with several curing agents for specific properties.

**2070:**

Service Temperature: 200F-300F

Remarks: For mold patching and repair of all kinds.

**MERECO DIVISION: MERECO Adhesives:**

**MERECO Adhesive #302:**

Room Temperature (Air Dry) Fast Setting Thixotropic  
Transparent Epoxy Cement and Bonding Agent

MERECO Adhesive #302 is a high strength epoxy adhesive which was especially developed for applications requiring a fast setting and transparent epoxy cement.

**METRE-GRIP 303 Series - Multi-Purpose Epoxy Adhesives:**

METRE-GRIP 303 series multi-purpose epoxy adhesive are available in four viscosity ranges.

**303:**

Description: Paste Form  
Viscosity Range (cps): 1,000,000

**303 MV:**

Description: Medium Cream  
Viscosity Range (cps): 100,000

**303 LV:**

Description: Light Syrup  
Viscosity Range (cps): 25,000

**303 VLV:**

Description: Very Light Syrup  
Viscosity Range (cps): 4,000

**METRE-SET 321:**

One Part High Temperature Epoxy Adhesive

This new high strength adhesive requires no mixing, weighing, or metering. METRE-SET 321 is a truly thixotropic one part paste which can be easily applied even to vertical surfaces without any running or sagging.

**METREGRIP 312:**

Rapid-Setting, High Strength, Five Minute Epoxy Adhesive

METREGRIP 312 is a unique two part epoxy adhesive which cures to a highly resilient bond in only five minutes.

**MERECO 3446:**

High Temperature Epoxy Adhesive...For Bonding Teflon and Rulon

MERECO 3446 is a new high temperature adhesive, with the unique capability of bonding Teflon, Rulon and similar fluoro-carbon polymers to themselves or other substrates.

**MERECO Adhesive X-305:**

An Instantaneous Bonding Two-Part Epoxy Adhesive

**META-LINK 361:**

Shock Resistant, High Temperature Epoxy Adhesive for Samarium-Cobalt Magnets for Diesel Injector Spring Seats.

Designed to chemically "weld" diverse hard to bond substrates to withstand the thermal and mechanical shock of high temperature corrosive environments.

**MERECO DIVISION: MERECO Coatings and Dipping Compounds:****META-GEL 156:**

Thixotropic, Non-Sag, Resilient Epoxy Dip Compound for Thin Film Coatings

META-GEL 156 is a 100% solids epoxy coating compound developed specifically to combine all of the superior electrical and physical characteristics of the META-GEL Series compounds, and yet provide a dipping material of moderate viscosity for thin film applications.

**MERECO 170 FR:**

Flame Retardant Epoxy Dipping and Sealing Compound

METAGEL 170 FR is a new flame retardant epoxy dipping and sealing compound especially formulated to meet the most difficult requirements of electronic components of electronic components encapsulation and conformal coatings.

**METRE/GEL 116:**

Thixotropic, Flame-Out Epoxy Dip Coating and Encapsulating Compound for Electronic Components

METRE/GEL 116, a unique new flame resisting epoxy dip-coating and general purpose encapsulating compound for electronic components meets the most stringent "fire-out" requirements of all new code standards. METRE/GEL 116 will not ignite readily, and will not sustain combustion.

**METAGEL 103:**

One Part 100% Solids Resilient Epoxy Dipping Compound

METAGEL 103 is a unique 100% solids coating compound specially formulated to utilize the maximum electrical, physical and chemical properties of the epoxy resins. The versatility of application of this solvent-free system provided for coatings in a wide range of controlled thicknesses, without the usual defects of the more common solvent-type coating systems

**METACOTE 1031:**

250 Single Component Clear Silicone Protective Coating for Electronic Components

METACOTE 1031 is a unique silicone coating resin system designed for protection of electronic components for 250C service.

**METACLAD 175:**

Resilient Epoxy Resin Varnish for Protective Coating of Printed Circuits, Metals, Plastics, Ceramics, and Similar Materials

METACLAD 175 is a solvent-based epoxy resin varnish which exhibits superior physical, chemical and electrical properties. It is specifically useful as a varnish protective coating for printed circuits and electrical components.

**MERECO DIVISION: MERECO Electrically Conductive:**

**METADUCT 1201:**

Conductive Epoxy Adhesive

METADUCT 1201 is a 100% solids, solvent free, highly conductive adhesive. It is a true plastic solder which can be cured at room temperature or in a few minutes at elevated temperatures - but much lower than any soldering temperatures.

METADUCT 1201 is a true conductor. Its specific resistivity is less than 0.1 ohm-cm.

**METADUCT 1202:**

Electrically Conductive Epoxy Silver

METADUCT 1202 offers the newest technology in electrically conductive epoxies.

High lead strength, excellent electrical conductivity and ease of handling are some of the outstanding characteristics of the formulation.

After mixing, METADUCT 1202 becomes thixotropic and will not drip or sag as it hardens. METADUCT 1202 hardens at room temperature overnight, or if desired, a speed cure is obtained in 15 minutes at 150C.

**METADUCT 1206:**

One-Part Highly Conductive Epoxy Compound for Adhesive, Laminating, and Coating Applications

METADUCT 1206 is a single package epoxy conductive compound ready to use as supplied. Putty-like, and without solvents, volatiles, or reactive diluents, METADUCT 1206 is easy to use by roller, knifeblade, spatula, or even with a dental amalgam carrier. A simple cure schedule converts METADUCT 1206 to an exceptionally strong, highly conductive, solder-like connective.

**METADUCT 1225 SN-736:**

Low-Cost General Purpose Electrically Conductive Adhesive

METADUCT 1225 SN-736 is an easy-to-use economical electrically conductive epoxy adhesive which has been specifically formulated for cost-critical applications.

METADUCT 1225 SN-736 is supplied in two parts, which when mixed, cure at room temperature into a rigid solid with excellent electrical conductivity -- low enough to satisfy most general purpose requirements.

**METADUCT 1225-SN-742:**

Low-Cost General Purpose Electrically Conductive Adhesive

METADUCT 1225 SN-742 is an easy-to-use economical electrically conductive epoxy adhesive which has been specifically formulated for cost-critical applications.

**MERECO DIVISION: MERECO Encapsulants:**

**MERECO XL-284:**

Low Viscosity Multi-Mix Ratio Epoxy Potting Compound  
Designed to Accurately Monitor Mixing Ratio of Metering  
Machines.

**METACAST 401:**

Low Viscosity, 100% Reactive, Room Temperature Cure Basic  
Casting Resin.

A very low viscosity, general purpose epoxy casting resin  
with excellent electrical and physical properties.

**MERECO 4130:**

General Purpose Low Viscosity Epoxy Resin System for Casting,  
Potting and Encapsulation

A general purpose low viscosity resin system designed for  
a wide variety of applications. Especially applicable to  
critical requirements of potting, casting, and encapsulations  
of both small and large electronic components.

**MERECO 4501-130:**

Crystal Clear Transparent Epoxy Rubber for Embedment of  
Electronic Components.

An epoxy resin system that contains no solvents, but is  
designed to cure into a transparent crystal clear rubber-  
like gel. The cured material is tough, yet firm and flexible.

**MERECO 4502:**

Water-White, Clear Epoxy Casting Resin for Cold Pouring  
and Encapsulation at Room Temperature.

A liquid epoxy resin system that contains no solvents, and  
hardens to a transparent, crystal clear, window-glass-like  
plastic.

**MERECO 4580:**

Epoxy Resin Encapsulating Compound for Micro Electronic  
Circuit Elements and Micro-Module Applications

An epoxy resin encapsulating compound without solvents,  
reactive diluents, or similar degrading adulterants.

**METACAST 5230:**

Multi-Purpose High Quality Epoxy Resin System

A low cost, multi-purpose epoxy resin compound designed  
specifically for use in the electronics industry.

**MERECO DIVISION: MERECO Encapsulants (Continued):**

**MERECO XLN-414:**

Epoxy Resin Sealing Compound for Micro Electronic Circuit Elements and Micro-Module Applications

MERECO XLN-414 is an epoxy resin sealing compound without solvents, reactive diluents, or degrading adulterants.

Low viscosity and exotherm; long working; short heat cure.

**MERECO XLN-429FR:**

One Step, High Performance Fire Retardant Potting Compound

A high performance UL94V-0 fire retardant potting and impregnating compound for use in high voltage transformers, coils and other components requiring excellent electrical properties.

**MERECO 4823-FR:**

UL-94-V-0 Class Fire Retardant Epoxy Encapsulant

MERECO 4823-FR when fully cured, provides tough, resilient, infusible casting that pass the requirements of Underwriters Laboratories specification UL-94V-0.

**METAGEL 166 FRN:**

Flame Retardant Epoxy Dipping and Sealing Compound

METAGEL 166 FRN is a new flame retardant epoxy dipping and sealing compound especially formulated to meet the most difficult requirements of electronic components encapsulation and conformal coatings.

**XLN-443:**

Air Releasing Fire Retardant Potting System

Intended Application: Sealing DIP Switch



**MERECO DIVISION: Thermally Conductive:**

**MERECO CN-773:**

High Heat Transfer Epoxy Resin System

MERECO CN-773 is a high performance thermally conductive epoxy resin system specially formulated to be the best and most logical engineering choice where excellent electrical characteristics, high thermal conductivity and low coefficient of expansion are absolute requirements; while other methods do yield substantially high values for thermal dissipation factors, using the Cenco-Fitch testing procedure. MERECO CN-773 shows a value of 4.76.

**Typical Applications:**

MERECO CN-773 is used as an electrically insulating and thermally conducting heat sink for bonding heat sensitive devices, for large castings of magnetic coils, and the encapsulation of heat emitting components, transformers, resistor elements, silicon controlled rectifiers, etc.

**METACAST 5448:**

Thermally Conductive Castable Liquid Heat Sink

METACAST 5448 is a high quality thermally conductive epoxy resin formulation. When catalyzed, it can be poured around heat producing electronic components and cured to an infusible solid with a thermal conductivity of 11.5 BTU/HR/Ft 2/F/IN. This allows potentially damaging heat to dissipate.

**MERECO DIVISION: Tooling Compounds:**

**METACHEM 901:**

High Strength Epoxy Tooling Compound-Aluminum Filled  
METAFORM 901 is a new compound designed for the rapid and economical manufacture of jigs, fixtures, models, and simple dies. When mixed as recommended, with METACURE #16 Hardener, METAFORM 901 pours readily into molds of wood, plaster, or metal. The finished pieces are dimensionally stable, and will withstand repeated and severe usage. METAFORM 901 gives excellent detail reproduction, and can be machined easily.

**Typical Properties of Cured METAFORM 901:**

Color: Aluminum

Tensile Strength (psi): 9,000

Compressive Strength (psi): 15,000

Flexural Strength: 14,500

Impact Strength, Izod (ft-lb/in): 1

Thermal Expansion Coefficient (in/in/F):  $11.6 \times 10^{-6}$

Water Absorption (24 hr. Immersion): 0.08

Heat Distortion Temperature (C): 150

**MONOMER-POLYMER & DAJAC LABORATORIES: EPIPHEN ER-825-A  
Epoxy Adhesive System:**

EPIPHEN ER-825-A is a new room temperature curing structural epoxy adhesive system suitable for bonding metals, glass, ceramics, reinforced plastics and many plastic materials to themselves or to each other. The adhesive is based upon EPIPHEN 825-A, a modified novolac epoxy.

**Specification Approval:**

This adhesive has been formulated to meet the performance requirements of Military Specification MMM-A-134, Type I.

EPIPHEN ER-825-A adhesive is a liquid system available in one quart kits containing four components - EPIPHEN 825-A, Modifier "T", 825-A Converter and filler. The components are preweighed so that no weighing is necessary, and when mixed together, fill the one-quart container.

**Working Life:**

The working life of a quart size mix is about 20 minutes and a temperature rise of ca 248F. will be noted. The working life may be extended by mixing smaller batches or by placing the mix in a shallow pan immersed in cold water or other coolant.

**Application:**

The adhesive may be applied by roller, brush or spatula at about 5 mil thickness. Since there is no solvent present, no drying time is necessary, hence the parts may be joined immediately after application of the adhesive. Single coats on both sides of the joint are recommended.

**Coverage:**

Estimate for 10 mil thickness, coverage is:  
0.00623 gal./sq.ft.  
160.4 sq.ft./gal.

**Curing Schedule:**

MMM-A-134, Type I specifies a maximum curing time of 7 days at 30C. (86F.) or one hour at 74C. (164F.). It has been determined that 48 hours at 75F. will be more than satisfactory for most applications.

**Pressure During Cure:**

Using EPIPHEN 825-A Adhesive it has been determined that there is essentially no difference in bond properties in a variation of glue line thickness between .001" and .010". As a result, the only pressure required in most applications is contact pressure; however, care should be taken to insure contact over the entire area to be bonded. Because of this, it is recommended that clamps or some other holding pressure be used.

**PERMAGILE INDUSTRIES, INC.: INSULBOND: Industrial and Electrical Adhesives:**

INSULBOND "Tough-Line" Adhesives Combine Toughness of Nylon with Adhesion and Chemical Inertness of Epoxy

810 (810 L.V.):

Feature: Adjustable/Flexibility

Catalyst & Ratio: Cure 22 Variable (Cure 24)

Mixed Viscosity cps: 60,000 (30,000)

802 (802 L.V.):

Feature: Adjustable/Flexibility/Transparent

Catalyst & Ratio: Cure 22 Variable (Cure 24)

Mixed Viscosity cps: 20,000 (15,000)

861:

Feature: Low Density

Catalyst & Ratio: INSULCURE 9 9 PHR

Mixed Viscosity cps: 2,500

825-M:

Feature: Metal Patch

Catalyst & Ratio: Mix A & B 1:1 Ratio

Mixed Viscosity cps: Thixotropic

T-BOND 830:

Feature: Thixotropic 1:1 Ratio

Catalyst & Ratio: Mix A & B 1:1 Ratio

Mixed Viscosity cps: Thixotropic

815:

Feature: Fire Retardant/Adjustable/Flexibility

Catalyst & Ratio: INSULCURE 24 Variable

Mixed Viscosity cps: 30,000

**Special Purpose Adhesives:**

820:

Feature: Fast Cure/6-8 Min. Gel/Transparent

Catalyst & Ratio: Mix A & B 1:1

Mixed Viscosity cps: 2,000

860:

Feature: Flexible/High Peel Strength

Catalyst & Ratio: Mix A & B 3:2

Mixed Viscosity cps: 8,000

850:

Feature: Water White/R.T. Cure/Tough

Catalyst & Ratio: Mix A&B 100:40

Mixed Viscosity cps: 1,000

841:

Feature: High Thermal Conductivity Hard/Rigid

Catalyst & Ratio: INSULCURE 9 or 11 3-4 PHR 4-5

Mixed Viscosity cps: 90,000

833:

Feature: Fire Retardant Conforms to U.L. 94V-0

Catalyst & Ratio: INSULCURE 9 or 11 5-6 PHR 7-8

Mixed Viscosity cps: 2,200 (9)

840:

Feature: Non-Flowing Sealant/Filler

Catalyst & Ratio: INSULCURE 9 or 11 6-7 PHR 8-9

Mixed Viscosity cps: Thixotropic

**PERMAGILE INDUSTRIES INC.: INSULCAST Epoxies:**

New Technology, Low Temperature Curing, One Component Series  
771, 772, 773 Rigid Epoxies; 781, 782, 783 Flexible Epoxies.  
These two Series can be blended for any degree of rigidity  
or flexibility.

771:

Color: Clear  
Viscosity - cps: 700  
Hardness - Shore D: 88  
Elongation - %: 2.0  
Tensile Strength: 8,700

772:

Color: Black  
Viscosity - cps: 12,000  
Hardness - Shore D: 93  
Elongation - %: 1.5  
Tensile Strength: 9,500

773:

Color: Black  
Viscosity - cps: Thixotropic  
Hardness - Shore D: 92  
Elongation - %: 1.5  
Tensile Strength: 9,500

781:

Color: Clear  
Viscosity - cps: 1,350  
Hardness - Shore D: 40  
Elongation - %: 125  
Tensile Strength: 5,500

782:

Color: Black  
Viscosity - cps: 25,000  
Hardness - Shore D: 45  
Elongation - %: 75  
Tensile Strength: 6,500

783:

Color: Black  
Viscosity - cps: Thixotropic  
Hardness - Shore D: 45  
Elongation - %: 75  
Tensile Strength: 6,500

**PERMAGILE INDUSTRIES INC.: INSULCAST: Potting/Casting/  
Encapsulating/Impregnating/Dipping:**

135:

Feature: Low Cost/Good Flow/Machineable  
Cat & Ratio: INSULCURE 9 or 11 6-7 PHR 8-9  
Mixed Visc. Cps: 6,000

136:

Feature: Low Cost/Versatile  
Cat & Ratio: INSULCURE 9 or 11 6-7 PHR 8-9  
Mixed Visc. Cps: 23,000

100-M:

Feature: Lowest Cost/1 to 1 Ratio  
Cat & Ratio: Part B 1 to 1 (Vol)  
Mixed Visc. Cps: 17,000

125:

Feature: Lowest Viscosity/Low Cost  
Cat & Ratio: INSULCURE 9 & 11 6-7 PHR 8-9  
Mixed Visc. Cps: 1,000

141:

Feature: High Thermal Conductivity/Good Thermal Shock  
Cat & Ratio: INSULCURE 9 or 11 3-4 PHR 4-5  
Mixed Visc. Cps: 90,000

70-C.C.

Feature: Semi Flexible/Low Stress  
Cat & Ratio: Part B  
Mixed Visc. Cps: 7,000

333:

Feature: Fire Retardant/Conforms to U.L. 94VO  
Cat & Ratio: INSULCURE 9 or 11 5-6 PHR 7-8  
Mixed Visc. Cps: 2,000 (9)

981:

Feature: Semi Flexible/Superior Hot I.R.  
Cat & Ratio: Mix A & B 1:1  
Mixed Visc. Cps: 40,000

612:

Feature: Electro-Conductive  
Cat & Ratio: INSULCURE 9 2 1/2%  
Mixed Visc. Cps: Smooth Paste

166:

Feature: Castable Aluminum  
Cat & Ratio: INSULCURE 9 or 11 4-5 PHR 7-8  
Mixed Visc. Cps: 15,000 (9)

**PERMAGILE INDUSTRIES INC.: INSULCAST: Potting/Casting/  
Encapsulating/Impregnating/Dipping (Continued):**

174:

Feature: Adjustable Flexibility  
Cat & Ratio: INSULCURE 22 Variable  
Mixed Visc. Cps.: 40,000

30:

Feature: Soft Gel/Repairable/R.T. Cure  
Cat & Ratio: Mix A & B 100-25  
Mixed Visc. Cps.: 750

275:

Feature: Thixotropic Dip/No Run Off  
Cat & Ratio: INSULCURE 9 or 11 6-7 PHR 8-9  
Mixed Visc. Cps: Thixotropic

510:

Feature: Water White  
Cat & Ratio: Mix A & B 100-20  
Mixed Visc. Cps: 2,000

961:

Feature: Low Density  
Cat & Ratio: INSULCURE 14 23-24 PHR  
Mixed Visc. Cps: 2,500

**Curing Agent:**

9:

Cps Visc.: 100  
Feature: Fast Cure

11:

Cps Visc.: 700  
Feature: Temperature Resistant - Rigid

12:

Cps Visc.: 500  
Feature: Safety Hardener

20:

Cps Visc.: 700  
Feature: Good Impact & Rapid Cure

22:

Cps Visc.: 10,000  
Feature: Variable Flexibility/Large Castings

26:

Cps Visc.: 800  
Feature: Low Viscosity, Good Impact, Very Large Castings

30:

Cps Visc.: 50  
Feature: Lowest Viscosity/Highest Temperature Resistance

**PERMAGILE INDUSTRIES INC.: INSULCAST: Potting/Casting/  
Encapsulating/Impregnating/Dipping (Continued):**

**INSULCAST 136:**

Features great versatility and conforms to MIL. 1-16923.

**INSULCAST 135:**

Is similar, but lower viscosity.

**INSULCAST 125:**

Is low viscosity for fast impregnation and easy evacuation.

**INSULCAST 333:**

Is fire retardant. Conforms to U.L. 94 V.O.

**INSULCAST 100-M:**

Lowest cost, 1:1 ratio by volume.

**INSULCASTS 140, 141:**

141 features very high thermal conductivity and good thermal shock. 140 is a low viscosity version of 141.

**INSULCAST 166:**

Castable aluminum. Good flow. Machines like metal.

**INSULCAST 275:**

Thixotropic dip compound. Leaves component or board with uniform coating.

**INSULCAST 612:**

A "cold-solder", high electrical conductivity.

**INSULGEL 30:**

R.T. Curing, repairable epoxy gel. No. 30 is softest in a series of four, with increasing Shore A hardness.

**INSULCAST 510:**

Water-white casting system for casting/encapsulating where clarity is important.

**INSULCAST 961:**

Low density syntactic foam, composed of rigid, hollow spheres in an epoxy matrix. Used for flotation, and light weight.

**INSULCAST 174 (L.V.):**

Variable flexibility. Available in low viscosity version (L. V.)

**INSULCAST 981:**

Semi-rigid. Best thermal shock and high temperature I.R.

**INSULCAST 70-C.C.**

Semi-flexible. Low shrinkage, low stress on components. Extremely low coefficient of expansion.



**PERMAGILE INDUSTRIES INC.: PERMAGILE Epoxies:****PERM-INJECT:**

Low Viscosity Epoxy for Repairs by Injection

PERM-INJECT is a 100% solids, moisture insensitive, two component, low viscosity epoxy with fast setting characteristics designed for application by injection. It is an epoxy adhesive designed to solve concrete repair and maintenance problems in previously unreachable areas such as:

- \* Restoring structural and design strength to cracked concrete structures, providing the original cause of cracking has been eliminated.
- \* Prevent corrosion of reinforcing steel by preventing water contact.
- \* Eliminates spalling of concrete initiated by cracks caused by freeze thaw cycles.
- \* Stopping leakage of water and fluids through cracks.
- \* Anchoring bolts and other structural supports more securely into concrete.

**PG-2089:**

Versatile Epoxy Mortar/Grout

PG-2089 is a 100% solids, two component, equal volume epoxy system in combination with thoroughly dispersed fillers and a compatible curing agent. It is epoxy mortar with the consistency of peanut butter, used as an adhesive to join concrete to concrete, masonry or dissimilar materials. It is used to provide a cove and seal around the periphery of below grade areas at the juncture of walls and floors. As a filler, it is ideal for effective treatment of cracks, voids and other defects in concrete, brick or block structures. Excellent adhesion and non-shrinking properties assure permanent repairs. Surfacing applications include where small holes, depressions, and spalled areas exist. PG-2089 is excellent as an adhesive to attach tiles, mosaic, glass or other objects to wall or floor surfaces.

**1-215 HM:**

Epoxy Bonding Agent Meets ASTM C-881

Positive bonding of new concrete to old, eroded or spalled concrete surfaces. Remedial maintenance, waterproofing and restoration of all concrete surfaces.

Epoxy Bonding Agent 1-215 HM is a two component, 100% solids, high modulus, moisture insensitive, structural adhesive for bonding new concrete to old concrete, patching and grouting wet and dry surfaces.

**BOND-1:**

Epoxy Bonding Agent 3-35-1 ASTM C-881

BOND-1 Epoxy Bonding Agent 3-35-1 is a 100% solids, two component epoxy structural adhesive for bonding new concrete to old concrete in high temperatures, or where long pot life and open time are needed. Can also be used as a binder for aggregate to create a mortar.

**PERMAGILE INDUSTRIES INC.: PERMAGILE Epoxies (Continued):**

**BOND-8:**

Epoxy Bonding Agent

Epoxy Bonding Agent BOND-8 is a two-component, high solids, structural adhesive for bonding new concrete to old concrete where long open time is needed or extremely high temperatures exist at the time of application.

Positive bonding of new concrete to old, eroded or spalled concrete surfaces, especially when intricate form work is required. Remedial maintenance, waterproofing and restoration of all concrete surfaces.

**UNIWELD:**

Epoxy Bonding Agent

Epoxy Bonding Agent UNIWELD is a two component, high solids, structural adhesive for positive bonding of new concrete to old, eroded or spalled concrete surfaces with extremely long open time. Remedial maintenance, waterproofing and restoration of all concrete surfaces.

**PLASTIC ARMOR:**

A Multi-Purpose Epoxy Protective Coating for Concrete-Masonry-Steel Interiors-Exteriors

The outstanding corrosion-resistance of PLASTIC ARMOR offer many advantages as a protective coating. With excellent adhesion and decorative properties, it is of major importance in all phases of industrial and commercial maintenance and protection. PLASTIC ARMOR is ideally suited as a protective coating for walls, ceilings, floors, tanks and other structural elements which are exposed to aggressive corrosive attack, constant washing, decontamination and wear.

**CAT COAT:**

High Build Epoxy Decorative Waterproofing and Protective Coating

Use:

- a) Dense, tile-like coating for waterproofing and protecting walls and floors, against corrosion and deterioration caused by water, chemicals and heavy traffic.
- b) Excellent for use on concrete block and similar surfaces as a graffiti resistant decorative coating.
- c) When an easy to clean slip-proof coating is required, aggregate can be broadcast into coating.

**Underwater Coating 1-140-2:**

Underwater Coating 1-140-2 is intended for use on steel or concrete surfaces which are constantly or intermittently submerged in water or in splash zone areas. May be used as a waterproofing or corrosion resisting coating applied under less than ideal conditions in areas such as sewers, sewage treatment tanks, cisterns, foundations, swimming pools and below grade flooring.

**PERMAGILE INDUSTRIES INC.: PERMAGILE Epoxies (Continued):****PG-1013:****Chemical Resistant Textured Skidproof Coating**

PG-1013 is an epoxy brush on skidproof coating that provides low cost insurance against accidents in areas such as ramps, loading docks, stairways, parking decks and balconies.

PG-1013 is a textured coating that transforms all interior and exterior hazardous traffic surfaces, whether it is masonry, metal or wood, into safe skidproof areas, even under oily and/or wet conditions.

PG-1013 is also used to coat walls and floors to cover over areas that have been repaired and also protect undamaged areas. In concrete gray color, it gives the appearance of a monolithic slab of concrete.

**PG-2112-2:****Acid Resistant Coating and Resurfacing System****Uses:**

PG-2112-2 is a unique 100% solid epoxy system which exhibits excellent superior chemical resistance to acids, alkalis, salts, solvents, oils and other chemicals. PG-2112-2 is high gloss, high abrasion resistant, moisture insensitive, low temperature curing. Coatings and toppings of PG-2112-2 and excellent resistance to thermal shock which are subjected in areas to frequent steam and/or hot water cleaning.

PG-2112-2 is recommended as a coating or topping whenever chemical resistance is needed on concrete, masonry, and wood substrates in food processing plants, dairies, chemical plants, waste water treatment tanks, battery storage and charging areas, breweries, plating plants, etc.

PG-2112-2 protects and restores areas subjected to chemical attack and/or high abrasions that are spalled and deteriorated. Aggregates such as silica sand, emery or silicon carbide may be added to produce mortars and grouts for repair and/or resurfacing. When used as a mortar, it is recommended that one or two topcoats be applied to seal the surface against chemicals and acids.

**AQUA ARMOR:****Water Based Coating**

AQUA ARMOR is an excellent coating for concrete walls, floors and masonry structures. It is ideal for interior applications where low vapor is imperative.

**T-250:****Flexible Epoxy Filler/Sealer for Joints, Grooves & Cracks**

Formula T-250 is a 100% solids, two component, equal volume, elastic-type epoxy. It has the proper consistency and working qualities for filling and sealing narrow masonry joints and grooves to prevent their damage as well as to promote a clean sanitary surface. Formula T-250 can also be grouted into cracks, holes and other defects in existing concrete to restore its structural integrity and prevent further deterioration.

**PERMAGILE INDUSTRIES INC.: PERMAGILE Epoxies (Continued):**

**PERMATOP LIQUID BINDER:**

Liquid Binder for Aggregate Blends & Anti-Corrosion Coating  
PERMATOP Liquid Binder is a 100% solids, two component, structural epoxy used primarily as a binder for tough aggregate materials in preparing mortars for resurfacing and repair of concrete floors. It is abrasive and chemical resistant. PERMATOP Liquid Binder can be used with aggregate blends ranging from pea gravel down to the grades of silica sand. It can be used without any filler additions in areas requiring high build coatings for severe corrosion problems.

**PG-2118 Liquid Binder:**

Fast Setting/Low Temperature Epoxy Binder ASTM C-881  
PG-2118 is recommended for use as: a) A chemical resistant, wear resistant floor resurfacer for damaged areas or to protect new floors from wear and corrosive elements. b) A patching material for repairing floors that must be opened to traffic quickly or are at the time of the application at low temperatures. c) A rapid setting anti-skid floor surface or coating.

**BITUPOX ECT:**

Epoxy Coal Tar Binder and Coating

**Use:**

Suited for use as a waterproof protective coating, membrane sealer or binder for mortar preparations.

- a) Adhesive to bond asphalt to bridge decks or to bond traffic dividers, markers, etc. to concrete or asphalt.
- b) Overlay on bridge decks, roadways and parking decks.
- c) Epoxy mortar for resurfacing and patching.

**Grades-Types:**

BITUPOX ECT-For use at normal temperatures down to 40F.

BITUPOX NON-SAG-For vertical application.

BITUPOX LTS-For application in low temperatures down to 5F or for fast setting at normal temperatures.

**1-216 LM:**

Low Modulus, Moisture Insensitive, Epoxy Binder and Adhesive  
ASTM C-881

**Use:**

Binder for creating skid-resistant floor toppings, patching, waterproofing and sealing. Moisture insensitive for use on dry, damp or wet surfaces. Low modulus of elasticity allows for variations in stress and temperatures.

**PERMAGILE INDUSTRIES INC.: PERMAGILE Epoxies (Continued):****PERMATOP (As a Pre-Packaged Unit):**

PERMATOP is a structural epoxy mortar topping which provides hard surfacing, skidproofing, and corrosion protection of either new or eroded concrete surfaces all in one application.

**PG-2115 Primer-Conditioner:**

PG-2115 is an epoxy-base primer specifically formulated to cure and bond to concrete impregnated with oil and grease.

**PG-2125:**

PG-2125 is a two component structural adhesive epoxy for bonding cured concrete to cured concrete, masonry or steel.

**PG-2128LV:**

PG-2128LV is a 100% solids, two component epoxy resin product which may be used as an injection resin coating, grout or mortar.

**PG-1050:**

PG-1050 is a two component epoxy-polysulfide grouting material for use in vertical repair applications up to 1/8" thick or as a bonding agent for new concrete. Two types in three grades are available to meet the requirements of FED SPEC MMM-G-650A.

Type 1 (Same as 1051)

Type 2 (Same as 1051)

Grade A Low Viscosity for spray application as a thin film.

Grade B Medium Viscosity for application by brush or broom.

Grade C High Viscosity for application by trowel.

**PG-1051:**

PG-1051 is a two component epoxy-polysulfide aggregate binder.

Type 1 is designed for use at temperatures between 68-104F.

Type 2 is designed for use at temperatures between 40-68F.

**PG-1-228:**

PG-1-228 is a 100% solids, two component, equal volume, underwater epoxy mortar, used for patching and grouting concrete on dry, wet and underwater surfaces.

**PG-2035:**

PG-2035 is a custom formulation, intended for underwater use and application.

**PG-2129:**

PG-2129 is a 100% solids, equal volume, non-shrinking epoxy resin system.

**PG-2130:**

PG-2130 is a 100% solids, equal volume, non-shrinking epoxy resin product.

**PLASKON ELECTRONIC MATERIALS: PLASKON Electronic Encapsulating Materials:**

**PLASKON ULS-12 Ultra Low Stress:**

PLASKON ULS-12 is a state-of-the-art, ultra-low-stress, epoxy encapsulant designed for packaging TSOPs and large stress-sensitive PLCCs and QFPs. PLASKON ULS-12 is formulated with a unique filler system which reduces the expansion coefficient without compromising moldability. PLASKON ULS-12 also offers reduced moisture absorption to enhance package crack resistance and provides dual low stress technologies which maintain a low flexural modulus. The features of PLASKON ULS-12 are:

- 1) Ultra low stress properties
- 2) Low moisture absorption
- 3) Outstanding moldability (good mold filling, low wire sweep, fast cycles, good hot hardness)
- 4) Superior reliability

**PLASKON SMT B:**

Molding Compound for Surface Mount Devices

PLASKON SMT B is an epoxy molding compound developed specifically for surface mount devices. PLASKON SMT B is formulated with a unique resin system which enhances package crack resistance and therefore eliminates the need for drybagging of SOICs and low to medium lead count PLCC and QFP packages with die sizes of <275 2 mil. An optimized filler system ensures outstanding moldability both with automated and conventional molding systems.

PLASKON SMT prevents package cracking upon exposure to high temperatures during surface mount soldering by offering the following properties:

- 1) Outstanding high temperature flexural strength
- 2) Minimal moisture absorption
- 3) Low stress

**PLASKON S-7:**

Low Stress

PLASKON S-7 is a state-of-the-art, low-stress epoxy encapsulant designed for packaging stress-sensitive semiconductor devices. PLASKON S-7 offers end-users superior value-in-use due to a balanced mix of properties such as:

- 1) Excellent low stress properties
- 2) Outstanding moldability (good mold filling, fast cycles, and good hot hardness)
- 3) Improved cosmetics and markability
- 4) Superior reliability

**PLASKON ELECTRONIC MATERIALS, INC.: PLASKON Electronic Encapsulating Materials (Continued):**

**PLASKON 3450 Conventional Encapsulant:**

PLASKON 3450 is a conventional epoxy molding compound for the encapsulation of semiconductor devices including small to medium lead count DIPs, SOICs, TO-type packages as well as discrete device packages. PLASKON 3450 was specifically formulated to offer:

- 1) Excellent moldability
  - \* Wide processing window
  - \* Ease of filling
  - \* Excellent mold release
  - \* Minimal flash and bleed
  - \* Good hot hardness
- 2) Reduced viscosity to minimize wire sweep and voids

**PLASKON 3400 Conventional Encapsulant:**

PLASKON 3400 is a reduced stress epoxy molding compound for encapsulation of a variety of semiconductor devices ranging from small lead count DIPs to medium lead count PLCCs, QFPs, and SOICs. PLASKON 3400 was especially developed for balanced end use properties such as:

- 1) Excellent moldability  
(ease of filling, good release, minimal flash and bleed, and good hot hardness)
- 2) Superior cosmetics
- 3) Improved markability
- 4) Outstanding device reliability

**PLASKON 3400F:**

**Conventional Fast Cure**

PLASKON 3400 is a fast-curing, reduced-stress epoxy molding compound for the encapsulation of semiconductor devices including DIPs, PLCCs, SOICs and medium lead count QFPs. PLASKON 3400F was developed especially for use with automated multiplunger or gang pot equipment and offers a balance of end use properties such as:

- 1) Fast cycle times
- 2) Excellent moldability (ease of filling, good release, minimal flash and bleed, and good hot hardness)
- 3) Superior cosmetics
- 4) Improved markability

**PLASKON 3300SH:**

PLASKON 3300SH epoxy molding compound exhibits exceptional reliability, excellent moldability, good release characteristics and low flash. This compound is especially formulated for improved hermeticity protection with high temperature compatibility and low stress. PLASKON 3300SH is designed to encapsulate a wide range of semiconductor devices including transistors and integrated circuits in dual on-line packages, PLCCs and SOICs.

**PLASKON ELECTRONIC MATERIALS, INC.: PLASKON Electronic Encapsulating Materials (Continued):**

**PLASKON 3300SGH:**

PLASKON 3300SGH epoxy molding compound exhibits exceptional reliability, excellent moldability, good release characteristics, low flash and rapid cure. This compound is especially formulated for automated molding equipment and offers improved hermeticity protection with high temperature compatibility and low stress. It offers manufacturers the opportunity for increased productivity and reduced costs due to its fast cure rate and superior moldability. PLASKON 3300SGH is designed to encapsulate a wide range of semiconductor devices including transistors and integrated circuits in dual in-line packages, PLCCs and SOICs.

**PLASKON 435:**

PLASKON 435 epoxy molding compound combines exceptional reliability with wide molding process latitude. This material is designed to encapsulate a variety of semiconductor devices including diodes, transistors, and other semiconductor devices requiring high power and thermal dissipation.

**PLASKON 440-1:**

PLASKON 440-1 epoxy molding compound is designed for encapsulating integrated circuits in a wide range of package configurations including DIPs, SOICs and PLCCs. PLASKON 440-1 combines excellent moldability, excellent reliability and good stress characteristics.



**PRODUCTS RESEARCH & CHEMICAL CORP.: PRC PERMAPOL Elastomeric Adhesives:**

**PR-943:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 2300  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-943 Gray:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 3300  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-943 White:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 2800  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-943-1:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 2300  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-943 Sprayable:**

Elastomeric Epoxy Sprayable  
Viscosity: 25 #2 Zahn Cup  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3200:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 2800  
Hardness Shore A: 50  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3201:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 4000  
Hardness Shore A: 75  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PRODUCTS RESEARCH & CHEMICAL CORP.: PRC PERMAPOL Elastomeric Adhesives (Continued):**

**PR-3202:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 4000  
Hardness Shore A: 50  
Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3203:**

Elastomeric Epoxy Brushable Paste  
Viscosity Poise at 77F: 400  
Hardness Shore A: 45  
Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3300:**

Elastomeric Epoxy Thixotropic Paste  
Viscosity Poise at 77F: 1900  
Hardness Shore A: 50  
Features: Fuel Resistant

**PRODUCTS RESEARCH & CHEMICAL CORP.: PRC PERMAPOL Flexible Adhesives:**

**PR-979:**

Flexibilized Epoxy Thixotropic Paste

Viscosity Poise at 77F: 2500

Hardness Shore D: 75

Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3250:**

Flexibilized Epoxy Fast Cure in Thin Film

Viscosity Poise at 77F: 5000

Hardness Shore D: 70

Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3251:**

Flexibilized Epoxy Fast Cure in Thin Film

Viscosity Poise at 77F: 5000

Hardness Shore D: 65

Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3252:**

Flexibilized Epoxy Self Leveling

Viscosity Poise at 77F: 800

Hardness Shore D: 45

Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PR-3253:**

Sprayable Epoxy

Viscosity Poise at 77F: 15

Hardness Shore D: 60

Features: Primerless adhesion to plastics, metals, rubbers, ceramic, wood

**PROTECTIVE COATING CORP.: PC-7 Epoxy Bonding Agent:**

PC-7 is a non-drip thixotropic paste with unlimited uses in bonding, sealing, and as a filler for most materials. Unlike conventional liquid epoxies, PC-7 can be applied to both vertical and overhead surfaces without drip or sag. After a 1:1 mix, PC-7 remains workable close to one hour and will cure for service overnight. Use PC-7 to bond both like and unlike materials with strength exceeding most materials on which used. PC-7 is non conductive and demonstrates excellent resistance to most chemicals, salt water, gasoline, and fuel oil.

Color: Component A: Light Grey  
Component B: Black  
Working Time (77F.): 1:1 Mix: 60 minutes maximum  
Tack Free Cure Time (77F.): 160 minutes  
Cure for Service: Overnight  
Maximum Cure: 1-2 weeks  
Gardner's Impact Resistance: 160 in.-lb.  
Elongation: 2%  
Conduction (Electric): Non Conductive  
Thermal Shock: Excellent  
Toxicity: Cured PC-7 Non Toxic  
Heat Range: -20F. to 180F.

**PC-11 White Epoxy Paste - Bonding Agent:**

PC-11 is a non-drip, two component, white, epoxy paste which has unlimited uses in bonding, sealing, and as a filler for most materials. After a 1:1 mix, PC-11 remains workable close to one hour, and can be applied to a vertical or overhead surface without run, drip, or sag. PC-11 will cure for service overnight. Heat can be used to accelerate cure time--especially useful when applied on a wet surface. PC-11 is non conductive and demonstrates excellent resistance to most chemicals, salt water, gasoline, and fuel oil.

Color: Component A: White  
Component B: Pale Blue-Green  
Working Time (77F.): 1:1 Mix: 40-60 minutes maximum  
Tack Free Cure Time (77F.): 90 minutes  
Cure For Service: Overnight  
Maximum Cure: 1-2 weeks  
Gardner's Impact Resistance: 140 in.-lb.  
Elongation: 3%  
Conduction (Electric): Non Conductive  
Thermal Shock: Excellent  
Toxicity: Cured PC-11 Non Toxic  
Heat Range (Temperature): -20F. to 200F.

**SMOOTH-ON, INC.: Adhesive Cements:****EA-40 Clear Epoxy Adhesive:**

Unfilled slightly thixotropic epoxy adhesive which can be spread readily in thin films that are almost transparent after curing.

**Part-A:**

Color: Translucent  
Mixing Ratio by Weight: 100 (200)  
Specific Gravity: 1.17  
Viscosity: 1,800 poise

**Part-B:**

Color: Clear Amber  
Mixing Ratio by Weight: 83 (83)  
Specific Gravity: 1.02  
Viscosity: 500 poise

**Mixed:**

Color: Clear Amber  
Specific Gravity: 1.10  
Viscosity: Light Paste

**METALSET A4 Epoxy Resin Cement:**

METALSET A4 is a general purpose epoxy resin cement containing an aluminum filler to provide a metallic appearance and good machining qualities. It has excellent adhesion to porous and non-porous surfaces alike, contains no solvent so it cures with negligible shrinkage even when applied as thick as 1/2".

**Part-A:**

Color: Metallic Gray  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.44  
Viscosity: 1600 poise

**Part-B:**

Color: White  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.43  
Viscosity: 3200 poise

**Mixed:**

Color: Metallic  
Viscosity: Paste

**SMOOTH-ON, INC.: Adhesive Cements (Continued):**

**SMOOTH-ON MT-13 Epoxy Resin Adhesive Cement:**

SMOOTH-ON MT-13 epoxy resin adhesive cement is a 2-component, paste-consistency formulation. When mixed equal parts by volume (100A/123B by weight) the product gels in a few hours at 25C and develops handling strength in 16 hours. Curing can be greatly accelerated by heat up to 100C. Adhesion is outstanding to porous and non-porous surfaces and bonds are highly water resistant.

**Part-A:**

Color: Translucent  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.17  
Viscosity: 1800 poise

**Part-B:**

Color: White  
Mixing Ratio by Weight: 123  
Specific Gravity: 1.47  
Viscosity: 3000 poise

**Mixed:**

Color: White  
Specific Gravity: 1.37  
Viscosity: Paste

**SONITE EG-2 Epoxy Grout:**

SONITE EG-2 is a heavily filled epoxy compound that can be troweled on vertical surfaces as thick as 1/2 inch without sagging. It is reddish-brown in color and sets at room temperature in a few hours. When fully cured EG-2 is hard and abrasion resistant making it suitable for various cementing and grouting purposes.

**Part-A:**

Color: Black  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.59  
Viscosity: 7,000 poise

**Part-B:**

Color: Red  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.63  
Viscosity: 2,000 poise

**Mixed:**

Color: Reddish Brown  
Specific Gravity: 1.61  
Viscosity: Heavy Paste

**SMOOTH-ON, INC.: Adhesive Cements (Continued):**

**SUPER INSTANT Epoxy:**

SMOOTH-ON SUPER INSTANT Epoxy is a two component, thixotropic clear adhesive designed to provide rapid bonding. When mixed in equal proportions--either by volume or by weight--curing takes place quickly enough to permit handling in 5 to 10 minutes at room temperature. SUPER INSTANT adheres to metals such as steel, aluminum and brass, to wood, glass, masonry and many hard plastics.

**Part-A:**

Color: Translucent  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.17  
Viscosity: 1,800 poise

**Part-B:**

Color: Clear Amber  
Mixing Ratio by Weight: 100  
Specific Gravity: 1.17  
Viscosity: 400 poise

**Mixed:**

Color: Clear Amber  
Specific Gravity: 1.17

**SONNEBORN BUILDING PRODUCTS: EPOLITH Surfacer System:**

High-Strength shallow topping system for concrete floors and pavement

The EPOLITH Surfacer System contains an epoxy resin primer and a trowel-applied epoxy topping to resurface and repair interior or exterior concrete floors and pavements. A properly applied shallow topping produces a high-strength, impact and abrasion-resistant surface. The EPOLITH Surfacer System cures to compressive and tensile strengths far in excess of concrete. Balanced cure rates for Primer and Surfacer prevent bond failure.

**Use:**

The EPOLITH Surfacer System is designed for maximum abrasion and impact resistance. It is especially recommended for:

- \* Parking structures
- \* Industrial floors and pavements
- \* Foundries and heavy-manufacturing plants
- \* Tool, auto, aircraft, and similar industries
- \* Walks, malls driveways, and roadways

**Advantages:**

- \* Simple mixing and application
- \* Low odor
- \* More economical than replacing concrete
- \* Strong bond to substrate
- \* Fast set and rapid ultimate strength development
- \* Extreme heavy-duty, shrink-free
- \* Non-absorptive surface, resistant to common chemicals
- \* Permits rapid installation scheduling

**SONOBOND Epoxy concrete bonding agent:**

SONOBOND is a two-component 100% solids epoxy resin adhesive system for bonding fresh concrete toppings to older existing surfaces or old concrete to old concrete. The two components, base and catalyst, are mixed equally in 1 to 1 ratios by volume immediately before using. When cured, the adhesive forms a permanent, waterproof bond between the old and new concrete. SONOBOND may be applied to concrete block, stone, brick, and other masonry.

**Use:**

SONOBOND makes fast, easy repairs between existing concrete and freshly placed concrete surfaces when a permanent bond is required. Use it for structural bonding and anchoring.

SONOBOND may also be used as an adhesive for bonding cured concrete to cured concrete.

**Advantages:**

- \* 100% reactive
- \* Two part - 1 to 1 ratio by volume
- \* Easy to use
- \* Apply to dry or damp surfaces
- \* Top immediately; no wait for reaction before use
- \* Provides bond as long as tack remains
- \* Moisture insensitive



**SONNEBORN BUILDING PRODUCTS: Sealers and High Performance Floor Coatings:**

**SONOPLEX R:**

Use this VOC-compliant 100% solids epoxy coating for thin-coat applications where ease of cleaning and appearance are major concerns.

**SONOPLEX HDR:**

This VOC-compliant 96% solids epoxy is designed for high-build applications where ease of cleaning and appearance are major concerns.

**SONOPRIME:**

This water-based epoxy/polyamide primer is used over dry or damp concrete surfaces before applying SONNEBORN polyurethane and epoxy coatings.

**SONOCOAT:**

A water-reducible epoxy enamel sealer, SONOCOAT provides the outstanding chemical resistance of epoxy resins in a water-reducible, easy-to-use package. SONOCOAT lays down a tile-like gloss finish that protects against marring, abrasion, and chemicals.

**SONOPLEX:**

A two-component catalyzed epoxy resin coating system with a high level of resistance to chemical spillage, vapors, and traffic. The glossy coating has outstanding adhesion, excellent flexibility, durability, and colorfastness. Colors: gray and transparent.

**SON-NO-MAR:**

A one-package fast air-drying epoxy ester resin that provides a protective and decorative finish for concrete floors. It has outstanding chemical inertness and hardness. Colors: gray and transparent.

**EPOLITH Surfacer:**

A two-part trowel-applied epoxy system used for high performance topping and for resurfacing jobs that require a high degree of abrasion and impact resistance. It produces several times the compressive and tensile strength of concrete. VOC compliant in New York, New Jersey, and California.

**STERLING: Room Temperature Cure Epoxies--Two Component:**

**E-200/12:**

Trickle Impregnant/Adhesive

Fast curing, low viscosity impregnant or adhesive featuring high tensile strength. Unfilled system.

Cure Time and Temperature: 2 hrs. @ 25C

**E-252/46//E-252/85//E-252/10:**

General Purpose Potting/Adhesive Series

Low viscosity, good tensile strength and moisture resistance. Unfilled Application versatility with choice of catalyst.

Cure Time and Temperature: 16 hrs./45 min./2 hrs. @ 25C

**Y-297/46//Y-297/85//Y-279/110:**

General Purpose Potting/Casting/Adhesives Series

Excellent moisture resistance, good machinability and thermal properties. Filled. Application versatility with choice of catalyst.

Cure Time and Temperature: 16 hrs./30 min./2 hrs. @ 25C

**E/SH-469:**

Specialty Potting

Flame Retardant compound, fast void-free cure. Filled system.

Cure Time and Temperature: 4 hrs @ 25C

**E/SH-496:**

Specialty Potting

Resilient, tough compound, excellent shock resistance. Low viscosity, filled system.

Cure Time and Temperature: 4-8 hrs @ 25C

**E/SH-537:**

Potting/Adhesive

Fast setting compound, low shrinkage, good resiliency and convenient mix ratio. Filled system.

Cure Time/Temperature: 1-2 hrs @ 25C

**Y-617-2/46:**

General Purpose Potting/Casting

Good heat dissipation, tensile and mechanical strength, chemical and moisture resistance. Filled system.

Cure Time/Temperature: 16 hrs. @ 25C

**E-653/46:**

General Purpose Potting/Casting/Adhesive:

Good thermal properties, excellent moisture resistance.

Low viscosity, filled system. Catalysts C-85 & 110 can also be used for pot life versatility.

Cure Time and Temperature: 16 hrs. @ 25C

**STERLING: Room Temperature Cure Epoxies-Two Component  
(Continued):**

**Y-759/64:**

Specialty Potting

Rigid thermal shock resistant compound, high thermal conductivity and long pot life. Filled system.

Cure Time and Temperature: 8-16 hrs. @ 25C

**E-400/12:**

Thixotropic Adhesive/Patching

Fast curing high viscosity adhesive, high tensile strength. Filled system.

Cure Time and Temperature: 1-2 hrs. @ 25C

**449A/B:**

General Purpose Structural Adhesive

Thixotropic paste with good workable pot life. Filled system.

Cure Time and Temperature: 16 hrs. @ 25C

**E-451A/105A:**

Thixotropic Sealant/Brushing Adhesive

Non-sagging compound, good abrasion, moisture and shock resistance. Filled system

Cure Time and Temperature: 4-8 hrs @ 25C

**U-958/12:**

Brushing/Banding Adhesive

High gloss, thixotropic, fast cure adhesive. Good abrasion resistance.

Cure Time and Temperature: 1-2 hrs. @ 25C

**Y-697/126:**

Conformal Coating

High build clear coating/sealant, excellent abrasion and moisture resistance. Unfilled.

Cure Time and Temperature: 8-12 hrs. @ 25C

**Heat Cure Epoxies-Two Component:**

**E/SH-419:**

Specialty Potting

Flexible, long pot life compound, high temp. resistance and excellent electricals. Filled system.

Cure Time and Temperature: 2 hrs. @ 65C

**E/SH-478:**

Specialty Potting

Semi-rigid, long pot life compound, good tensile strength and thermal shock resistance. Filled system.

Cure Time and Temperature: 4 hrs. @ 150C

**STERLING: Heat Cure Epoxies—Two Component (Continued):**

**E/SH-495:**

Specialty Potting

Semi-rigid compound, fast low temp. cure. Excellent gasoline, oil and moisture resistance. Unfilled system.

Cure Time and Temperature: 1 hr. @ 130C

**E/SH-508:**

Specialty Potting

Rigid compound, fast low temp. cure, good thermal conductivity, high heat distortion, and low shrinkage. Filled system.

Cure Time and Temperature: 2 hrs. @ 100C

**E/SH-511:**

Sealant/Potting

Flame retardant compound, fast cure and non-wicking characteristics.

Cure Time and Temperature: 1 to 3 min. @ 150C

**E/SH-512:**

Filament Winding Resin

Long pot life resin, high heat distortion, low viscosity and good tensile strength.

Cure Time and Temperature: 2 hrs. @ 80C + 3 hrs. @ 200C

**E/SH-539:**

Potting/Adhesive

Fast cure, resilient sealant or adhesive. Good chemical resistance and lap shear tensile strength, plastic and metal bonding. Unfilled system.

Cure Time and Temperature: 15 min. @ 150C

**E/SH-555:**

Potting/Sealing

Fast low temp. cure thixotropic sealant or adhesive.

Excellent chemical resistance and non-wicking characteristics.

Cure Time and Temperature: 15 min. @ 125C

**E/SH-560:**

Potting

Low viscosity, clear low temp. cure. Extremely flexible, good thermal shock endurance. Excellent for electronic packaging. Unfilled system.

Cure Time and Temperature: 3 hrs @ 125C

**STERLING: Heat Cure Epoxies-Two Component (Continued):****Y-617/161:**

## Potting/Casting

Resilient, tough compound, low temp. cure. Good electricals and excellent thermal shock resistance. Filled system.

Cure Time and Temperature: 2-3 hrs. @ 125C

**Y-617-2/104x-2:**

## Potting/Casting

Semi-rigid, tough compound, high tensile strength, low temp. cure and excellent electrical properties. Filled system.

Cure Time and Temperature: 2-3 hrs @ 135C

**E-676/80//E-676/190:**

## Potting/Casting Series

Choice of flexible or semi-rigid system. Thermal shock resistance, low shrinkage and excellent high temp. electricals.

Cure Time and Temperature: 8 hrs. @ 125C

**Y-858A/80:**

## Specialty Potting/Casting

Flame retardant version of E-676/80

Cure Time and Temperature: 3 hrs. @ 110C

**Heat Cure Epoxies - One Component:****E-100:**

## Low Viscosity Impregnant

Low viscosity solventless resin. High bond, fast gel and good tank stability. Unfilled. Adaptable to VPI.

Gel Time @ 150C. Minutes: 6-9

Cure Time and Temperature: 8 hrs. @ 150C

**E-103:**

## Thixotropic Impregnant

Higher viscosity version of E-100. Higher film build and reduced run-off. Adaptable to VPI.

Gel Time @ 150C. Minutes: 10-14

Cure Time and Temperature: 8 hrs. @ 150C

**ER-109:**

## Potting/Impregnant

Flexible, low temp. cure compound. Good pourable viscosity, thermal shock resistance, low shrinkage and excellent electricals. Unfilled system.

Gel Time @ 150C. Minutes: 25-30

Cure Time and Temperature: 4 hrs. @ 125C

**STERLING: Heat Cure Epoxies - One Component (Continued):**

**D-163B:**

Thixotropic Impregnant

Medium viscosity, solventless resin. Resilient, good thermal shock and moisture resistance. VPI recommended. Provides complete seal.

Gel Time @ 150C Minutes: 15-19

Cure Time and Temperature: 8 hrs. @ 150C

**U-300:**

Brushing/Wet Winding

High viscosity solventless resin. High thermal conductivity, superior bond strength and tensile strength.

Gel Time @ 150C. Minutes: 9-12

Cure Time and Temperature: 8 hrs. @ 150C

**U-300-20:**

Brushing/Wet Winding

Lower viscosity version of U-300.

Gel Time @ 150C. Minutes: 9-13

Cure Time and Temperature: 8 hrs. @ 150C

**E-301:**

Coating/Sealant

Heavy film forming compound. High heat distortion, minimal drainage and long shelf life. Designed to seal and encase coils. Filled system.

Gel Time @ 150C. Minutes: 12-18

Cure Time and Temperature: 4 hrs. @ 150C

**ER-321:**

Medium Viscosity VPI Impregnant

Excellent electricals, chemical and moisture resistance, high bond, indefinite tank life.

Gel Time @ 150C. Minutes: 8-14

Cure Time and Temperature: 8 hrs. @ 150C

**ER-393:**

Impregnant/Casting

Low viscosity resin, high bond, good electricals, excellent chemical resistance. Suitable for form or random wound coils, static dip and VPI.

Gel Time @ 150C. Minutes: 5-9

Cure Time and Temperature: 4 hrs. @ 150C

**STERLING: Heat Cure Epoxies - One Component (Continued):**

**ER-410:**

Adhesive/Gap Filler

Fast low temp. cure adhesive. High tensile and lap shear strength, long shelf life.

Gel Time @ 150C. Minutes: 3-5

Cure Time and Temperature: 5 min. @ 150C

**ER-474:**

Laminating Adhesive

Fast cure medium viscosity adhesive, high lap shear tensile strength and long, stable shelf life.

Gel Time @ 150C. Minutes: 4-5

Cure Time and Temperature: 4 min. @ 205C

**Y-833:**

Low Viscosity VPI Impregnant

Excellent electrical properties for high voltage equipment and good tank life.

Gel Time @ 150C. Minutes: 32-48

Cure Time and Temperature: 8 hrs. @ 150C

**SYMPLASTICS, INC.: Adhesive/Sealants:**

The following system includes: high temperature adhesives, non-sag adhesives, container sealants, terminal sealants, high peel and shear strengths for metal, plastic, etc. Adhesives from very low viscosity to thixotropic, non-sag types.

**1010-50/4235-50/4440-50:**

Low viscosity to non-sag at 150C with excellent chemical resistance and short (HC) schedule. Rigid with operating temperature to 155C. Low toxicity hardner. (HC)

**1010-596/4235-596/4440-596:**

Low viscosity to non-sag in an excellent heat cured adhesive/sealant. Excellent adhesion in thermal shock resistant system. (HC) Heat resistance to 155C.

**1273-72:**

A sealant with thixotropy yet with flow designed for flow coating bottom of containers containing ill fitted terminals, use to fill areas of leakage before potting. (RTC)

**1425-56:**

An adhesive/potting system with excellent thermal conductivity for the bonding of nylon or the potting of nylon cups. (HC)

**1574:**

One component, heat cured adhesive/sealant system designed for maximum peel strength in metal to metal bonds (50 pli). Also used in slip fittings where some material is to flow down between the joints. Cure: 180C/1 hr. Heat resistance to 200C. (HC)

**4234-10:**

Unfilled, semi-thixotropic, heat cured system designed for bonding fiberglass. (HC)

**4235-72:**

Semi-thixotropic, variable flexibility adhesive/sealant designed for general uasge on metal or plastic. System gives excellent moisture resistance and good thermal shock qualities. (RTC or HC)

**4235-284:**

Semi-thixotropic, rigid, good temperature resistance, fast curing adhesive/sealant for can seams, crack filling and small leakage areas around terminals (RC)

**4235FR-284:**

Flame retardant version of 4235-284 (RC)

**4235FR-50:**

Flame retardant version of 4235-50 (HC)

**5415 A&B:**

Low cost conductive adhesive designed for good conductivity and good thermal conductance (RTC)

RTC: Room Temperature Cure

HC: Heat Cure

RTC/HC: Room Temperature Plus Post Cure



**SYMLASTICS, INC.: Coatings (Liquid and Powder) and Decoupage Systems:**

The following systems were formulated for decoupage work, coatings for table tops, flame retardant and moisture resistant powder coatings for fluidized bed or electrostatic spray coatings, dip coatings and clear coating systems for circuit boards, etc.

**1004-812:**

Hard decoupage coating. Thicker and harder than most coatings. Slight amber tone. Mix ratio: 1 to 1 (RTC)

**1010-802:**

Low viscosity coating that is clear until gelled or cured then, becomes opaque. Mix ratio: 2 to 1 (RTC)

**1010-809:**

Similar to 1010-802 but remains clear when cured. Good flow coating. Excellent clarity. Mix Ratio: 2 to 1. Good hardness (RTC)

**1495 A&B:**

Filled dip coat for brush or dipping. Excellent conformal coating with excellent heat resistance and thermal conductivity properties. Excellent ceramic capacitor or small device encapsulant. Usage to 120C. (RTC/HC)

**1949:**

Excellent moisture resistant fluidized bed coating. Will cure as low as 85C. Excellent for coating heat sensitive capacitors or parts. 3 month shelf life. (HC)

**2100-810:**

Similar to 1010-809 except a thicker coat and a mixing ratio of 1 to 1, by volume. (RC)

**2202 A&B:**

Clear flexible coating that may be repaired. Long pot life, short cure by heat. (A-65) (RTC or HC)

RTC: Room Temperature Cure

HC: Heat Cure

RTC/HC: Room Temperature Plus Post Cure.

**SYMPLASTICS, INC.: Large Mass Impregnation Systems:**

The following systems were formulated for tank impregnation, wet winding of coils, vacuum impregnation of wire wound devices and ultra low viscosity systems for gravity impregnation and potting in one step.

**1003-3:**

Rigid, crystal clear impregnate or small potting system. High impact strength. Long RTC or short heat cure. (RTC or HC)

**1010 ABC:**

High temperature resistant impregnate for tanks. Also used for wet winding coils. Very high electricals, rigid and temperature resistant to 200C. Also used for the impregnation/lamination of fiberglass (HC)

**1010FR ABC:**

Similar to 1010 ABC but flame retardant to UL94 VO. Rigid (HC)

**2285 AB:**

Low viscosity, thermal shock resistant to Mil T-27A for transformers. Also meets Mil I-16923G, Type D. Excellent for motors, transformers, coils, etc. (HC)

**2285FR AB:**

Similar to 2285 except flame retardant to UL94 VO. Exact replacement when flame retardancy is required. (HC)

**2650 ABC:**

Similar to 1010 ABC except lower cost and lower heat resistance to 155C. Widely used as fiberglass laminating resin. Excellent for wet winding coils. Short heat cure. (HC)

**2660 ABC:**

Similar to 2650 ABC except flame retardant to UL94 VO. Exact replacement when flame retardancy is required. (HC)

**2665 ABC:**

Similar to 2650 ABC but with lower viscosity with lower heat resistance. Easier to use on fine wire coils without preheating system. (HC)

RTC: Room Temperature Cure

HC: Heat Cure

RTC/HC: Room Temperature Plus Post Cure

**SYMLASTICS, INC.: Large Mass Potting/Casting Systems:**

The following systems are for large mass usage where thermal shock resistance, low exothermic reaction in 200 grams to 8 pound masses, volume or weight mixing and low to medium cost are application requirements.

**1007-728/1350-728:**

Highly flexible systems for impregnation and potting of units requiring excellent thermal shock resistance and moisture resistance. (RTC or HC)

**1225-85:**

Low viscosity silica filled system with long pot life, low exotherms in large masses and low shrinkage. (RTC or HC)

**1250-8:**

Filled system with long pot life, low exotherm, high gloss with high impact strength. (RTC or HC)

**1320-85:**

Low viscosity system with long pot life, low exotherm in large masses and machinable. (RTC or HC)

**1350-8:**

Similar to 1250-8 except for excellent machinability (RTC or HC)

**1515-591:**

Tooling Resin, aluminum filled with added lubricity for replacing machined aluminum parts. Ultra high impact strength and good thermal conductivity. (HC)

**1870 A&B:**

Excellent pattern making resin with excellent machinability, good impact strength and low shrinkage. Color: White. Hard. Mix ratio: 1 to 1 (RC or HC)

**1871 A&B:**

Large mass, low cost, low viscosity, semi-rigid, thermal shock system. Up to 20 pound mass can be cast with low exothermic reaction and low shrinkage. Mix ratio: 1 to 1 Hard/resilient (RC)

**1873 A&B:**

Very low viscosity, large mass casting resin with good penetration of potted componentry. Hard (RC)

**SYMPLASTICS, INC.: Large Mass Potting/Casting Systems  
(Continued):**

**1874 A&B:**

Flame Retardancy to UL94 VO, excellent thermal shock resistance, low cost, low viscosity and operational to 130C. Hard (RC)

**18752 A&B:**

Large mass, excellent thermal shock resistance, semi-flexible, low viscosity, low exotherm. Long pot life in gallon mass. (RC)

**1877 A&B:**

Large mass, excellent thermal shock resistance, flexible system, low viscosity, low exotherm (140F 33# mass) with excellent moisture resistance. (RC)

**1950:**

One component, lightweight potting system with excellent moisture resistance. Specific gravity is .26 (HC)

**1951:**

One component system similar to 1950 except specific gravity is .35 to .37. (HC)

**1954:**

One component system similar to 1951 except higher compressive strength and lower shrinkage. Low cost system with .35 to .39 specific gravity. (HC)

**2221 A&B:**

Low viscosity, high flexible (A-55), potting system with flame retardancy to UL94-VO. May be dug out and repaired. (HC)

RTC: Room Temperature Cure

HC: Heat Cure

RTC/HC: Room Temperature Plus Post Cure

**SYMLASTICS, INC.: Small Mass Potting/Casting/Impregnation Systems:**

The following systems are for capacitor end filling, potting cups, circuit board encapsulation and other applications requiring low viscosity and quick cure. Mixed mass should be under 200 grams.

**1004-201/1007-201/1010-201:**

Unfilled, varying viscosities for good thermal shock and adhesion to plastic cases. Semi-flexible. (RTC)

**1006-803:**

Low viscosity, unfilled rigid with high impact strength and high gloss finish. Excellent air release (RTC)

**1006-284:**

Excellent air release, unfilled, good heat resistance, good hardness, high gloss and fast curing. Okay for polycarbonate films. (RTC)

**1006-74:**

Low viscosity, heat curing with high heat resistance. Okay for polycarbonate films. (RTC)

**1007-213:**

Low viscosity, unfilled, with high heat resistance. Good air release in castings (RTC)

**1010-6/1010-803:**

Medium viscosity, unfilled with good thermal shock and high impact. Similar systems with price difference (RTC)

**1010-74:**

Ultra high temperature resistant two part epoxy formulated for wet winding coils impregnation and small cup potting. Short heat cure (HC)

**1010-809:**

Medium viscosity, 2 to 1, by volume, with high gloss and moisture resistance (RTC)

**1281-284:**

Fast curing, unfilled, low viscosity, flame retardant to UL94 VO. Okay for polycarbonate films (RTC)

**1225-35:**

Low viscosity, filled, general purpose system with good heat resistance (RTC)

**SYMLASTICS, INC.: Small Mass Potting/Casting/Impregnation Systems (Continued):**

**1225FR-284:**

Medium low viscosity, flame retardant system to UL94 VO. Fast curing for polycarbonate capacitor end filling (RTC)

**1225FR-803:**

Low viscosity, flame retardant system to UL94 VO. Excellent air release, high gloss for general small cup potting. (RTC)

**1230-284:**

Excellent system for potting or end filling polycarbonate capacitors. Good air release, high gloss and fast curing. (RTC)

**1230-561:**

RT gellation plus heat cure. Excellent heat, chemical and moisture resistance (RTC/HC)

**1230-803:**

High impact strength, low viscosity, filled, with excellent air release. Great general potting system. (RTC)

**1250-6:**

Medium viscosity, silica filled system with good impact strength and high gloss. 30" pot life. (RTC)

**1250-803:**

Similar to 1250-6 but is less costly, shorter cure time, shorter pot life and better air release. (RTC)

**1250-56:**

High heat resistance (150C) filled, step cured system. (HC)

**1250-213:**

High heat resistance (130C), short pot life, fast cure and low toxicity. (RTC)

**1282-284:**

Flame retardant to UL94 VO, low viscosity system for small cups and polycarbonate capacitors (RTC)

**1282-561:**

Flame retardant to UL94 VO, low viscosity for small cups. RT gellation plus heat cure for high temperature resistance. (RTC/HC)

**1282-803:**

Flame retardant to UL94 VO, lowest viscosity for small cups and wrap and fill capacitors (non-polycarbonate). High impact strength, high gloss and good air release (RTC)

**SYMLASTICS, INC.: Small Mass Potting/Casting/Impregnation Systems (Continued):****1282-2213:**

Flame retardant to UL49 VO, thermal shock resistant from -55C to 125C. Low viscosity with good air release for all general usage (RTC)

**1350-6:**

Similar to 1250-6 filled, but has excellent machinability. Made for casting, then machining small parts (RTC)

**1350-803:**

Similar to 1350-6 but with better air release, faster curing and shorter pot life. Good machinability. (RTC)

**1425-56:**

Medium viscosity, high thermal conductivity and good heat resistance (HC)

**1425-284:**

Fast gellation and curing system with high thermal conductivity and good heat resistance (RTC)

**1426-596:**

Low thermal expansion, high thermal conductance and thermal shock designed for ceramic capacitor encapsulation. (HC)

**2202 A&B:**

Medium viscosity, flexible potting/casting system with Shore A-65 hardness. Long pot life. (RTC or HC) Repairable

**2218 A&B:**

Clear, low viscosity, highly flexible (A-80) potting system. Repairable with long pot life. (RC or HC)

**2221 A&B:**

Low viscosity, highly flexible (A-82) potting system with flame retardancy to UL94 VO. Repairable. Long pot life. (RTC or HC) Similar to 2218 properties.

RTC = Room Temperature Cure

HC = Heat Cure

RTC/HC = Room Temperature Plus Post Cure.

**SYON CORP.: TRU-BOND Epoxy Adhesives:**

**TRU-BOND 201:**

High Strength-Thermosetting Structural Adhesive  
High shear adhesive and sealant and is easily used by mixing equal parts of each by volume or by weight. Excellent for bonding. Excellent for bonding dissimilar materials.

**TRU-BOND 203:**

High Strength Thixotropic Adhesive  
Thixotropic, modified, 100% solids epoxide adhesive which has tenacious adhesion to most substrates. It has a buttery consistency and is supplied with a choice of three curing agents to cover a wide range of applications. TRU-BOND 203 may be used in the bonding of metals, rubber, ceramics, plastics, foam, wood, etc., to themselves and to each other. It is resistant to oil, gasoline, jet fuel, hydraulic fluid, acids, alkalis, salt moisture, etc. It is a true insulator and can be used in the prevention of corona and galvanic attack.

**TRU-BOND 204:**

Flexible Adhesion  
An excellent bonding agent where resilient, strong bonds at low temperatures are required. It is particularly suitable for bonding materials having unlike coefficients of thermal expansion.

**TRU-BOND 205:**

Epoxide Adhesive  
Formulated for variable flexibility and hardness and is used as an adhesive, a casting resin and for laminating applications. Flexibility and hardness are changed by using different ratios of resin/hardener. This resin is extremely tough and impact resistant, having a high peel strength, long pot life, low shrinkage and low exotherm. TRU-BOND 205 has superior qualities for embedments having a high dielectric strength and excellent electrical properties.

**TRU-BOND 206:**

Conductive Adhesive Solder  
A two-part epoxide based compound used for bonding components requiring good electrical conductivity and for microwave shielding. It is used in many applications where hot solder would damage or destroy the electrical components. It may also be used in cases where hot solder will not bond to the types of metals or metal wires to be joined. The volume resistivity is less than  $1 \times 10$ , and bond strengths range as high as 2500 lbs. per inch in shear.



**SYON CORP.: TRU-BOND Epoxy Adhesives (Continued):****TRU-BOND 207:****Bonding Resin for Motor and Stack Laminating**

An epoxy/solvent system, supplied as single or double component and is generally used for bonding motor or stack laminations. TRU-BOND 207 is applied to the metal substrate at room temperature and the solvent is allowed to evaporate, leaving a tough film of epoxy resin. Heat from the cure cycle causes the resin flow and then becomes a strong infusible solid layer with heat resistance and shear strength. TRU-BOND 207 is readily adapted to mass production methods and can be applied by dipping, spraying, brushing, or roll casting. Available only in bulk containers.

**TRU-BOND 208:****Epoxide Adhesive-High Peel Strength**

A two-part epoxide-based resin adhesive which is used in equal proportions by weight, Part A to Part B. It has good shear and peel strength and is used for bonding most substrates to themselves and to each other. TRU-BOND 208 has good dielectric strength and the cured adhesive has excellent resistance to oils, gasoline, JP4 jet fuel, salt spray, acids, alkalis and most solvents. TRU-BOND 208 is used in the construction of honeycomb panels and other types of core construction.

**TRU-BOND 209:****Structural Adhesive-High Shear Strength**

A 100% solids modified epoxy adhesive used for the structural assembly of metals, ceramics, rigid plastics, rubber, foams, etc. TRU-BOND 209 is sufficiently flowable to give uniform surface wetting and coverage with application by brush, roller, knife or spatula. It is a two-component mixture consisting of equal parts by weight and may be metered visually for non-critical applications.

**TRU-BOND 210:****Epoxy Resin Base-High Shear Paste Adhesive**

A Thixotropic, epoxy paste compound which meets all requirements of MMM-A-187a. TRU-BOND 210 is 100% solids, a two-part system and is used in an equal part ratio by volume or by weight. It does not run, drip or sag when used in sections up to 1/16" thick. With properly cleaned surfaces, TRU-BOND 210 bonds securely under contact only at room temperature or moderate elevated temperatures.

**SYON CORP.: TRU-CAST Potting and Casting Resins:**

**TRU-CAST 101:**

General Purpose, Low Cost, Silica Filled Potting and Casting Compound.

Used for electronic packaging and protection of delicate systems using semi-conductors, capacitors, transformers, chokes, inductors, diodes, relays, etc. Also an excellent compound for casting small parts and prototypes. Easily handled, producing excellent electrical, thermal, and physical properties. Room temperature cure for average use with small castings or heat cure for long potlife, maximum physical properties, higher thermal resistance and best for large castings. Normally black.

**TRU-CAST 102:**

Low Viscosity, Unfilled Epoxide Potting and Casting Resin.

Produces light amber castings and its low viscosity helps release trapped air. It is used as a laminating resin for fiberglass lay-up work with excellent adhesion, bonding to most materials. Choice of room temperature or heat cure.

**TRU-CAST 103:**

Unfilled and Unmodified Epoxide Potting and Casting Resin.

Excellent electrical and physical properties can be obtained with a choice of room temperature or heat cure. Light amber color.

**TRU-CAST 104:**

Low Density (Syntactic Foam Filler) Potting and Casting Resin.

Formulated for airborne and other applications where weight saving is a factor. Specific gravity-.70. Low dielectric constant can be used to advantage in some circuits. Used to embed fastenings or as a low density filler in lightweight structural panels. Color, red brown.

**TRU-CAST 105:**

Low Cost, Flame Retardant Potting and Casting Epoxide Resin.

This compound has exceptional electrical properties. Used with open or closed molds, this resin handles easily. It can be either room temperature or heat cured.

**TRU-CAST 106:**

High Temperature (500F Continuous Duty) Epoxide Resin.

Resistant to long periods of thermal aging, thermal cycling and low shrinkage on cure. Used for missile and aircraft components subjected to extreme environmental conditions. Available only in bulk containers. Color, black.

**SYON CORP.: TRU-CAST Potting and Casting Resins (Continued):****TRU-CAST 107:**

Flexible Epoxide Potting Compound

This flexible resin is used with electronic components and connectors where improved thermal and shock characteristics are important while maintaining the electrical and environmental characteristics of epoxy resin.

**TRU-CAST 109:**

Low Coefficient of Thermal Expansion.

This Potting and Casting resin features a low coefficient of Thermal Expansion, and, also, a very low shrinkage on cure. Highly resistant to thermal cycling and mechanical or heat shock.

**TRU-CAST 110:**

Clear, White Casting Resin and Adhesive.

Excellent for specimen castings or modules used in cases where embedded parts to components are to be seen with a high degree of clarity. TRU-CAST 110 comes in both room temperature and heat curing systems. The heat curing systems are used in making large castings or when resistance to temperature is important. For adhesive applications, the room temperature curing system is generally used and is suitable for bonding glass, clear plastics, china, acetate, acrylic and many other materials. This resin is being used successfully in the field of fiber optics.

**TRU-CAST 111:**

High Density, Thermal Conductive Potting and Casting Resin.

Exceptional thermal conductivity and high temperature resistance. This resin has a very low shrinkage on cure and after curing has a low coefficient of thermal expansion. This is an excellent material to be used in cases where components generate excessive heat which must be dissipated by using the casting as a heat sink. Color, normally black.

**TRU-CAST 113:**

Flexible, Resilient Casting and Potting Compound.

Used for protecting delicate circuitry against shock and vibration. The viscosity of this formulation is very low and produces bubble-free castings without requiring vacuum techniques. Color, normally clear amber.

**TRU-CAST 115:**

Low Viscosity Potting and Casting Resin.

Excellent machinability and good dielectric epoxy. It is easy to pour and in most cases, vacuum is not necessary to make void-free castings. Color, black, may be colored.

**SYON CORP.: TRU-CAST Potting and Casting Resins (Continued):**

**TRU-CAST 116:**

Low Viscosity, Flame Retardant Potting and Casting Resin.

Exceptional electrical properties. Because of its low viscosity, it is easily pourable and makes void-free castings. Maintains outstanding electrical properties over a wide range of temperatures. Superior for electronic packaging. Color, normally black, may be colored.

**TRU-CAST 117:**

Low Viscosity Electrical Adhesive and Potting Compound.

A modified epoxy resin having excellent adhesive, good shock resistance and good physical and electrical properties. This system is used for casting, potting and coating applications, also as an excellent adhesive.

**TRU-CAST 118:**

Low Viscosity, Low Exotherm Potting and Casting Resin.

This system is very easy to pour and minimizes air entrapment. Cures with a very low exotherm and is a flexible epoxy casting resin.

**TACC INTERNATIONAL CORP.: Adhesives:****AR-1001,2,3,4:**

Type: Epoxy

High strength adhesives series available in a range of viscosities from non-sag paste to low viscosity. Variable curing agent level for rigid to flexible system.

Workable Pot Life 100gm. Mass @ 25C: 30 min.

Mixed Viscosity @ 25C, cps: 1-Paste/2-Paste/3-50,000/4-5,000

**700-93:**

Type: Epoxy

Two component, 100% solids system for small and large motor OEM's and rebuilders. Color coded for easy mixing.

Workable Pot Life 100gm. Mass @ 25C: 40 min.

Mixed Viscosity @ 25C, cps: Paste

**701-38:**

Type: Epoxy

One component, fast cure at low temperature, high strength thixotropic adhesive.

Workable Pot Life 100gm. Mass @ 25C: 6 mos.

Mixed Viscosity @ 25C, cps: Paste

**2241 Series:**

Type: Epoxy

One component, thermally conductive, induction curable, high temperature, fast curing adhesive designed for permanent magnet motors. Meets MMM-A-132 Type II.

Workable Pot Life 100gm. Mass @ 25C: 6 mos. at 20C

12 mos. at 0C

Mixed Viscosity @ 25C, cps: Paste

**700-40:**

Type: Epoxy

One component designed for glass to glass bonding in head-lamps. Low glass transition temperature (Tg) of -50F. Low cost, flexible.

Workable Pot Life 100gm. Mass @ 25C: 6 mos. at 20C

12 mos. at 0C

Mixed Viscosity @ 25C, cps: Paste

**700-45:**

Type: G; Epoxy

One component. 100% solids, rigid high strength with excellent adhesion to glass and plastics. Non-sag.

Workable Pot Life 100gm. Mass @ 25C: 6 mos. at 20C

12 mos. at 0C

Mixed Viscosity @ 25C, cps: Paste

**TACC INTERNATIONAL CORP.: Casting, Potting, Encapsulating Resins:**

**700-82:**

Type: Epoxy

One component, self leveling, heat cured epoxy potting/sealing compound. Features rapid cure at moderate temperatures to give high heat and chemical resistance. For filter media sealing or bonding ceramics or metals. 700-82-1 is lower visc. (20,000).

**16-100:**

Low viscosity, high temperature resistant system for box stack capacitors. Will not attack polycarbonate, polyester, polypropylene or metalized films. Meets UL-94 V-0 requirements.

**ER-2042:**

Low viscosity, rigid, general purpose system designed for ease in handling with low shrinkage and high strength.

**ER-2050:**

Low viscosity, filled system with excellent dimensional stability, low shrinkage, exceptional resistance to impact, vibration and thermal shock. Machinable with excellent resistance to chemicals, moisture and solvents.

**ER-2060:**

Medium viscosity, non-critical mix ratio, general purpose designed for ease of use. Outstanding physical, thermal and electrical insulation properties.

**700-88:**

Low cost, 2 component, 100% solids, fast cure designed for automotive electronics. Can withstand short exposures to 350F. Will not discolor.

**0476:**

Two component, semi-thixotropic liquid epoxy adhesive for potting applications. Very tough at both high and low temperature with good impact strength.

**ER-2112:**

Flame retardant system meets UL-94 requirements. Premium grade which cures to a glossy, bubble free casting with excellent moisture, chemical and solvent resistance.

**ER-2300:**

Anhydride cure for excellent high temperature, thermal shock and arc track resistance.

**ER-2900:**

Light weight syntactic foam with toughness, impact resistance and excellent adhesion to metals, plastics and most other substrates.

**3125:**

One component, potting compound, highly filled for excellent heat resistance (Class H-180C). Excellent resistance to strong solvents, gasoline, Freon, saltwater and mild acids.

**TACC INTERNATIONAL CORP.: Conformal Coatings:**

**CR-3117:**

Type: Epoxy

Flexible circuit board coating, solvent based conformal protective coating. Fluorescent under black light for coverage and identification. Passes MIL-E5722 and MIL-STD-202 (106).

**16-600:**

Type: Epoxy

Conformal dip coating for foil, metalized film, ceramic, mica and tantalum capacitors. Meets UL 94 V-0 requirements.

**Electrically Conductive Resins:**

**4010:**

Type: Epoxy

Single component, heat cure designed for ease in handling. Soft paste. Excellent mechanical integrity and thermal stability.

**4100:**

Type: Epoxy

Pure silver filled electrically conductive with high adhesion and maximum continuity of conductivity. Can be thinned as a coating for FRI and EMI shielding.

**4200:**

Type: Epoxy

Low cost, light weight silver electrical conductor, can be used in adhesive, potting and coating applications. Low volume resistivity.

**4230:**

Type: Epoxy

Single component designed for ease in handling. Quick cure at elevated temperatures. Low cost, light weight.

**Thermally Conductive Resins:**

**12-100:**

Type: Epoxy

Thermally conductive epoxy insulator for heat sink applications. Ideal for casting, potting or as an adhesive for high heat dissipation.

**12-101:**

Type: Epoxy

FR version of 12-100. Meets the rigid requirements of UL 94 V-0.

**12-170:**

Type: Epoxy

Rubber modified thermal conductive for excellent electrical insulation and low stress during cure. For sensitive components.

**TACC INTERNATIONAL CORP.: Dielectric Materials:**

**1000 Adhesive Series:**

**AR-1004:**

A very low viscosity liquid with an oil like consistency designed for those applications requiring an ultra thin glue line and maximum penetration.

**AR-1100:**

Five minute set epoxy adhesive and field patch repair kit. Designed for on the spot repair and patching of metals, plastics, glass, wood, etc.

**AR-1120:**

Low thermal coefficient of expansion makes it ideal for bonding both similar and dissimilar substrates.

**AR-1130:**

Designed for applications requiring gap-filling properties, and adjustable flexibility.

**AR-1218:**

A thixotropic general purpose, 100% solids epoxy adhesive, that is easily applied and will not sag or drip.

**AR-1418:**

A unique adhesive designed for added strength while maintaining flexibility.

**AR-1650:**

Butter on epoxy protective coating, ideal for minor winding protection in harsh environments.

**AR-1700:**

A new adhesive and sealant with long term shelf stability. Ideally suited for adhesive, sealant and fast cure, automatic dispensing high temp. bond.

**2000 Casting, Potting, Encapsulating Resin Series:**

**ER-2020:**

An excellent choice for electronic circuitry and components that must be protected from moisture vapor transmission and thermal shock resistance.

**ER-2023:**

A two component closed cell urethane foam developed for potting, encapsulating, thermal insulation, flotation and molding parts. 3 lb./cu. ft. density.



**TACC INTERNATIONAL CORP.: Dielectric Materials (Continued):**

**2000: Casting, Potting, Encapsulating Resin Series:**

**ER-2027:**

A potting and casting resin that is reinforced with fiber-glass for large unit encapsulation. Low thermal coefficient of expansion.

**ER-2028:**

A two component closed cell designed for potting, encapsulation and molding parts. 10 to 11 lb./cu.ft. density.

**ER-2036:**

Low weight epoxy casting and potting resin. A low density syntactic foam, high bond strength to most substrates. Good impact and thermal shock properties.

**ER-2042:**

A rigid epoxy encapsulant designed for ease in handling and exhibits excellent physical, thermal and electrical insulation properties.

**ER-2047:**

100% reactive resin which does not contain any solvent, diluents, plasticizers or additives which downgrade properties.

**ER-2205:**

Designed for potting, casting and encapsulating. Low shrinkage, high tensile with temp. service from -5 to 180C.

**ER-2220:**

Combines ease in handling excellent electrical properties with choice room temperature and heat cure catalysts. Work horse system for all purpose potting and encapsulating.

**ER-2300:**

Maximum thermal shock resistant epoxy system for high temperature use, best arc-track resistance for high voltage applications of transformers, coils, etc.

**ER-2380:**

High adhesion to most surfaces, low exotherm, low internal stress and minimal shrinkage during polymerization. Excellent for electronic modules, coils, etc.

**ER-2381:**

Excellent for potting and encapsulation of electronic modules. Coils, and micro electronic networks that require thermal cycling extremes and low pressure on delicate components.

**TACC INTERNATIONAL CORP.: Dielectric Materials (Continued):**

**2000 Casting, Potting, Encapsulating Resin Series (Continued):**

**ER-2400:**

Water clear epoxy for encapsulation and embedment; non-brittle, non-yellowing for applications requiring inspection after potting.

**3000 Conformal Coating and Varnish Resin Series:**

**CR-3115:**

Fire retardant conformal epoxy dip coating. Resistance to moisture, chemical and solvents. Applications include: fire retardant protective coating for capacitors, etc.

**CR-3117:**

A fluorescent 2 component, room temp. curing, flexible epoxy circuit board coating. Designed for coating of printed circuit boards and other electronic components.

**CR-3200:**

One part polyurethane protective coating varnish forms a resilient high gloss finish. Excellent salt spray resistance, ideal moisture barrier for IC's and PCB's

**CR-3200WS:**

Water borne urethane air dry coating.

**CR-3300:**

One part extreme high temperature resistant silicone varnish.

**CR-3912:**

Solvent based high temperature protective and moisture barrier silicone coat resin.

**4000 Electrically Conductive Resin Series:**

**ECR-4100:**

Pure silver filled electrically conductive epoxy. Maximum continuity of conductivity, high adhesion; can be thinned as a coating for FRI and EMI shielding.

**ECR-4200:**

Low cost, light weight silver epoxy electrical conductor; can be used in adhesive potting, and coating applications; low volume resistivity.

**TACC INTERNATIONAL CORP.: Dielectric Materials (Continued):****4000 Electrically Conductive Resin Series (Continued):****ECR-4300:**

One part pure silver filler epoxy compound designed for integrated circuit chip bonding. Can be used with automatic dispensers or silk screened.

**ECR-4700:**

An air dry conductive designed for applications which will not tolerate high temp. firing. Produces an electrically conductive path on a wide variety of surfaces.

**Thermally Conductive Resin Series:****TCR-12-100:**

Thermally conductive epoxy insulator for heat sink applications. Ideal for casting, potting, or as an adhesive for high heat dissipation.

**TCR-12-151:**

A thermally conductive epoxy rubber for coating and encapsulation of electrical packages with delicate components, will not crush or stress during and after cure.

**TCR-2773:**

Used as a heat sink for bonding heat sensitive components for large castings of power supplies and coils as well as encapsulation of components which dissipate heat.

**TCR-2820:**

Thermally conductive epoxy casting, potting and adhesive resin system. Ideal for high voltage applications such as: power supplies, transformers, regulators, etc.

**FORM-A-TOOL Epoxy Tooling Resin:****13-301:**

Mixing Ratio by Wt.: 12  
Durometer Range: Shore D: 85  
Color: Aluminum

**AR-1100 5 Min. Patch:**

Mixing Ratio by Wt.: 100  
Durometer Range: Shore D: 70  
Color: Clear

**TR-13-352 RTV Silicone:**

Mixing Ratio by Wt.: 10  
Durometer Range: Shore A: Elastomer  
Shore D: Elastomer  
Color: White

**THERMOSET PLASTICS, INC.: Standard Tooling Systems: Epoxies:**

**Casting:**

**200:**

Aluminum Filled Mass Casting  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 5.2 to 1  
Working Life: 80-90 min.  
Viscosity @ 25C, cps: 9,500  
Typical Cure Schedule: 16-20 hrs @ 25C

**203:**

Aluminum Filled Surface Casting  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 5.7 to 1  
Working Life: 40-50 min.  
Viscosity @ 25C, cps: 7,000  
Typical Cure Schedule, 12-16 hrs @ 25C

**206:**

Black, High Density Casting  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 3.7 to 1  
Working Life: 80-90 min.  
Viscosity @ 25C, cps: 10,000  
Typical Cure Schedule: 16-20 hrs @ 25C

**DC-291:**

Thin Wall Prototype Casting System  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 25  
By Vol.: 3.8 to 1  
Working Life: 25-30 min.  
Viscosity @ 25C, cps: 2,000  
Typical Cure Schedule: 16-20 hrs @ 25C

**DC-441:**

Aluminum, High Heat and Solvent Resistant  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 8  
By Vol.: 7.5 to 1  
Working Life: 45-55 min.  
Viscosity @ 25C, cps: 8,000  
Typical Cure Schedule: 16-24 hrs @ 25C + 2 hrs @ 120-160C

**EL-374:**

(White 200) Mass Casting Resin  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 5.2 to 1  
Working Life: 80-90 min.  
Viscosity @ 25C, cps: 8,500  
Typical Cure Schedule: 16-20 hrs @ 25C

**THERMOSET PLASTICS, INC.: Standard Tooling Resins: Epoxies:  
(Continued):****Casting(Continued):****EL-487:**

Aluminum, Elevated Temperature Resistant  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 5  
By Vol.: 11.4 to 1  
Working Life (1 lb @ 25C): 35-45 min.  
Viscosity @ 25C, cps: 22,000  
Typical Cure Schedule: 16-20 hrs @ 25C

**EL-552:**

Aluminum Filled Surface Casting--Long Pot Life  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 6.5 to 1  
Working Life (1 lb @ 25C): 60-70 min.  
Viscosity @ 25C, cps: 5,000  
Typical Cure Schedule: 16-20 hrs @ 25C

**EL-636:**

Very High Temperature Casting System  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 1  
Working Life (1 lb @ 25C): 1-2 days  
Viscosity @ 25C, cps: 60,000  
Typical Cure Schedule: 12-16 hrs @ 50-65C +  
2 hrs ea @ 95, 150, 205C

**Adhesive & Paste:****100:**

White Paste, Equal Part Mix  
Mix Ratio (Resin to Hardener): By Wt.: 1 to 1  
By Vol.: 1 to 1  
Working Life (1 lb @ 25C): 20 min.  
Viscosity @ 25C, cps: Paste  
Typical Cure Schedule: 16 hrs @ 25C

**104:**

Mahogany-Impregnating Low Viscosity Adhesive  
Mix Ratio (Resin to Hardener): By Wt.: 5 to 4  
By Vol.: 1 to 1  
Working Life (1 lb @ 25C): 8-10 min. (1/4 lb)  
Viscosity @ 25C, cps: 850  
Typical Cure Schedule: 4-6 hrs @ 25C

**THERMOSET PLASTICS, INC.: Standard Tooling Resins: Epoxies  
(Continued):**

**Adhesive & Paste (Continued):**

125:

Aluminum Filled, Machineable Paste  
Mix Ratio (Resin to Hardener): By Wt.: 1 to 1  
By Vol.: 1 to 1  
Working Life (1 lb @ 25C): 20-30 min.  
Viscosity @ 25C, cps: Paste  
Typical Cure Schedule: 12-16 hrs @ 25C

210:

Mahoganite, Epoxy Wood, Fast Cure.  
Mix Ratio (Resin to Hardener): By Wt.: 2 to 1  
By Vol.: 2 to 1  
Working Life (1 lb @ 25C): 3-4 min.  
Viscosity @ 25C, cps: Paste  
Typical Cure Schedule: 30-60 min @ 25C

211:

Mahoganite, Epoxy Wood, Standard Cure  
Mix Ratio (Resin to Hardener): By Wt.: 1 to 1  
By Vol.: 1 to 1  
Working Life (1 lb @ 25C): 10-15 min.  
Viscosity @ 25C, cps: Paste  
Typical Cure Schedule: 4-8 hrs @ 25C

**Surface Coat:**

261:

Grey, High Temp. Resistant, Room Temp. Cure  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 11  
By Vol.: 6 to 1  
Working Life (1 lb @ 25C): 15-20 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 16 hrs @ 25C + 1 hr @ 120-160C

264:

White, General Purpose, Room Temp. Cure  
Mix Ratio (Resin To Hardener): By Wt.: 100 to 20  
By Vol.: 3.2 to 1  
Working Life (1 lb @ 25C): 15-20 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 16-24 hrs @ 25C

**THERMOSET PLASTICS, INC.: Standard Tooling Systems (Continued):****Surface Coat (Continued):****265:**

White, Thin to Medium Consistency  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 8  
By Vol.: 8 to 1  
Working Life (1 lb @ 25C): 10-15 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 8-12 hrs @ 25C

**267:**

White, Plaster and Plastic Construction  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 14  
By Vol.: 4.3 to 1  
Working Life (1 lb @ 25C): 20-25 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 12-16 hrs @ 25C

**270:**

White, P & P Construction, Light Bodied  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 25  
By Vol.: 3.5 to 1  
Working Life (1 lb @ 25C): 10-15 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 12-16 hrs @ 25C

**DC-170:**

Aluminum, High Impact Resistance  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 20  
By Vol.: 3.2 to 1  
Working Life (1 lb @ 25C): 15-20 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 16-24 hrs @ 25C

**DC-491:**

High Temp., Long Working Life, Non-Staining  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 11  
By Vol.: 6.2 to 1  
Working Life (1 lb @ 25C): 25-30 min.  
Viscosity @ 25C, cps: Thixotropic  
Typical Cure Schedule: 16 hrs @ 25C +  
2 hrs @ 120-160C

**THERMOSET PLASTICS, INC.: Standard Tooling Systems: Epoxies  
(Continued):**

**Laminating:**

**281:**

Grey, High Temp. Resistant, Room Temp. Cure  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 15  
By Vol.: 5.4 to 1  
Working Life (1 lb @ 25C): 25-30 min.  
Viscosity (1 lb @ 25C): 1,800  
Typical Cure Schedule: 16 hrs @ 25C + 2 hrs @ 120-160C

**285:**

White or Blue, Room Temperature Cure, General Purpose  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 10  
By Vol.: 7.3 to 1  
Working Life (1 lb @ 25C): 25-30 min.  
Viscosity @ 25C, cps: 2,100  
Typical Cure Schedule: 16-24 hrs @ 25C

**286:**

White, High Early Strength  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 16  
By Vol.: 4 to 1  
Working Life (1 lb @ 25C): 30-40 min.  
Viscosity @ 25C, cps: 2,400  
Typical Cure Schedule: 12-16 hrs @ 25C

**DC-151:**

Good Impact Resistance  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 25  
By Vol.: 3.2 to 1  
Working Life (1 lb @ 25C): 30-40 min.  
Viscosity @ 25C, cps: 2,500  
Typical Cure Schedule: 16-24 hrs @ 25C

**DC-634:**

High Temp. Resistance, Room Temp. Cure, Non-Staining  
Mix Ratio (Resin to Hardener): By Wt.: 100 to 15  
By Vol.: 5.4 to 1  
Working Life (1 lb @ 25C): 25-30 min.  
Viscosity @ 25C, cps: 2,300  
Typical Cure Schedule: 16 hrs @ 25C + 2 hrs @ 120-160C



**THERMOSET PLASTICS, INC.: Structural Adhesives:****100:**

Heavy bodied paste which will not sag on vertical surfaces. Good general purpose adhesive.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: by wt.: 1:1  
by vol.: 1:1

Working Life @ 25C: 20 Min.

Initial Cure Schedule: 16 Hrs. @ 25C

**101:**

Very fast room temperature curing. Also of use when prompt cure is required in low temperature environments. Heavy bodied, non-slumping paste. Color-coded as a mix indicator. Good, quick repair/patching/sealing material.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: by wt.: 1:1  
by vol.: 1:1

Working Life @ 25C: 2-3 Min.

Initial Cure Schedule: 1 Hr. @ 25C

**103:**

Liquid adhesive to form flexible or rigid bond line. Excellent for bonding to flexible, semi-flexible and difficult plastic substrates. Varying mix ratio varies flexibility of bond. Meets FDA food additive regulations.

Mixed Viscosity @ 25C: 10,000 cps (honey-like viscosity)

Mix Ratio: Resin:Hardener: Variable (from 2:1 to 1:2 by wt.)

Working Life @ 25C: 60 Min.

Initial Cure Schedule: 24 hrs @ 25C

**DC-80:**

Light bodied paste version of THERMOSET 103 with the same flexible, rigid and plastic bonding characteristics. Color coded or mix indicator. THERMOSET 103 and DC-80 may be blended to obtain intermediate viscosities between 103's pourable liquid and DC-80's light bodied paste consistencies.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: Variable (from 2:1 to 1:2 by wt.)

Working Life @ 25C: 60 Min.

Initial Cure Schedule: 24 Hrs. @ 25C

**104:**

Clear, low viscosity, rapid setting. Will impregnate wood, due to low viscosity. Suitable for close fitting substrates.

Mixed Viscosity @ 25C: 850 cps

Mix Ratio: Resin:Hardener: by wt.: 100:80  
by vol.: 1:1

Working Life @ 25C: 8-10 Min.

Initial Cure Schedule: 6 hrs @ 25C

**THERMOSET PLASTICS, INC.: Structural Adhesives (Continued):**

**125:**

Aluminum-filled, heavy bodied paste which will not sag on vertical surfaces. Cured 125 is easily ground, drilled and tapped, or machined to a feathered edge. Particularly appropriate for use in metal bonding.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: by wt.: 1:1  
by vol.: 1:1

Working Life @ 25C: 20 Min.

Initial Cure Schedule: 24 hrs @ 25C

**EP-280:**

Paste adhesive specifically formulated to have long "open time" for high volume production line requirements, and to minimize frequent solvent purging of and to mix/meter/dispensing equipment. Fast cure time in heated fixture. Non-critical mix ratio, particularly suited for bonding polyester, sheet molding compound (SMC) to SMC and metal.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: by wt.: 100:115  
by vol.: 100:133

Working Life @ 25C: 80 Min.

Initial Cure Schedule: 2-4 Min @ 240F (heated fixture)

**267:**

Non-slumping paste. Cures well against wet or moist surfaces.

Mixed Viscosity @ 25C: Paste

Mix Ratio: Resin:Hardener: by wt.: 100:14  
by vol.: 100:23

Working Life @ 25C: 25 Min.

Initial Cure Schedule: 24 Hrs @ 25C

**EP-433:**

Initially low in viscosity, but quickly builds thixotropy after mixing. Appropriate for "tongue and groove" bonding. EP-433 is color coded as a mix and degree of cure indicator. Appropriate for high volume mix, meter dispensing production.

Mixed Viscosity @ 25C: Liquid (initially) Paste

Mix Ratio: Resin:Hardener: by wt.: 100:83  
by volume: 100:100

Working Life @ 25C: 10-14 Min.

Initial Cure Schedule: 20-30 Min. @ 45C

### 3M/Adhesives, Coatings and Sealers Division: Adhesives for the Electrical and Electronics Industry:

#### Two-part Epoxies:

##### SCOTCH-WELD DP-100 Epoxy Adhesive:

Base Resin: Epoxy

Mix Ratio (B:A): 1:1

Color: Clear

Viscosity (cps): B-12,000/A-14,000 @ 23C

Mixed Work Life @ 23C: 3-5 Min.

Full Cure Schedule: 24-48 Hr. @ 23C or 1-2 Hr. @ 65C

Comments: Low viscosity/Rigid/Good for component sealing/  
Clear/Meets corrosion resistance requirements MIL-S-46163

##### SCOTCH-WELD DP-100 NS Epoxy Adhesive:

Base Resin: Epoxy

Mix Ratio (B:A): 1:1

Color: Translucent

Viscosity (cps): B-100,000/A-90,000 @ 23C

Mixed Work Life @ 23C: 3-5 Min.

Full Cure Schedule: 24-48 Hr. @ 23C or 1-2 Hr. @ 65C

Comments: Non-sag version of DP-100

##### SCOTCH-WELD DP-110 Epoxy Adhesive:

Base Resin: Epoxy

Mix Ratio (B:A): 1:1

Color: Translucent/Gray

Viscosity (cps): B-30,000/A-30,000 @ 23C

Mixed Work Life @ 23C: 9-10 Min.

Full Cure Schedule: 48-72 Hr. @ 23C or 1-2 Hr. @ 65C

Comments: Flexible/Translucent/Gray/Fast cure/Good for structural bonding

##### SCOTCH-WELD DP-190 Epoxy Adhesive:

Base Resin: Epoxy

Mix Ratio (B:A): 1:1

Color: Gray

Viscosity (cps): B-100,000/A-52,000 @ 23C

Mixed Work Life @ 23C: 90 Min.

Full Cure Schedule: 7D @ 23C or 2 Hr. @ 65C

Comments: High flexibility/Good adhesion to metals, ceramics & plastics/Good for structural bonding

##### SCOTCH-WELD DP-260 Epoxy Adhesive:

Base Resin: Epoxy

Mix Ratio (B:A): 1:1

Color: Translucent

Viscosity (cps): B-90,000/A-50,000 @ 23C

Mixed Work Life @ 23C: 50-60 Min.

Full Cure Schedule: 2 D @ 23C or 1 Hr. @ 80C

Comments: Noncorrosive to copper/Meets corrosion resistance requirements of Mil-S-46163/Humidity resistant electrical properties/Thermal shock resistant

**3M/Adhesives, Coatings and Sealers Division: Adhesives for  
the Electrical and Electronics Industry (Continued):**

**Two-Part Epoxies (Continued):**

**SCOTCH-WELD DP-270 Potting Component/Adhesive:**

Base Resin: Epoxy  
Mix Ratio (B:A): 1:1  
Color: Clear/Black  
Viscosity (cps): B-22,000/A-18,000 @ 23C  
Mixed Work Life @ 23C: 60-70 Min.  
Full Cure Schedule: 2 D @ 23C or 1 Hr. @ 80C  
Comments: Noncorrosive to copper/Meets corrosion resistance  
requirements of Mil-S-46163/Non-exotherming potting compounds/  
Clear version is crystal clear

**SCOTCH-WELD DP-420 Epoxy Adhesive:**

Base Resin: Epoxy  
Mix Ratio (B:A): 2:1  
Color: Off White  
Viscosity (cps): B-80,000/A-10,000 @ 23C  
Mixed Work Life @ 23C: 20 Min.  
Full Cure Schedule: 3-4 D @ 23C/1-2 Hr. @ 65C  
Comments: High peel and shear strength/Excellent durability/  
Controlled flow

**SCOTCH-WELD DP-460 Epoxy Adhesive:**

Base Resin: Epoxy  
Mix Ratio (B:A): 2:1  
Color: Off White  
Viscosity (cps): B-80,000/A-10,000 @ 23C  
Mixed Work Life @ 23C: 60 Min.  
Full Cure Schedule: 7 D @ 23C or 2 Hr. @ 65C  
Comments: High peel and shear strength/Excellent durability/  
Controlled flow

**SCOTCH-WELD 1838 B/A L Epoxy Adhesive:**

Base Resin: Epoxy  
Mix Ratio (B:A): 1:1  
Color: Translucent  
Viscosity (cps): B-11,000/A-10,000 @ 23C  
Mixed Work Life @ 23C: 90 Min.  
Full Cure Schedule: 7 D @ 23C or 2 Hr @ 65C  
Comments: Excellent environmental resistance/Low viscosity/  
Rigid/Good for potting

**3M/Adhesives, Coatings and Sealers Division: Adhesives for the Electrical and Electronics Industry (Continued):****One-Part Epoxies:****SCOTCH-WELD 1386 Epoxy Adhesive:**

Base Resin: Epoxy

Color: Cream

Viscosity (cps): Syrup 200,000 @ 23C

Full Cure Schedule: 60 Min @ 177C or 10 Min. @ 204C or  
5 Min @ 232CComments: High strength at elevated temperatures/Good  
impregnation resin/Meets Mil-A-8623A, Type III**SCOTCH-WELD 2214 Regular Epoxy Adhesive:**

Base Resin: Epoxy

Color: Gray

Viscosity (cps): Paste 130 Sec @ 23C

Full Cure Schedule: 40 Min @ 121C or 10 Min @ 149C or  
5 Min @ 177CComments: High temperature resistant/High impact strength/  
Metallic filled/Meets MMM-A-132, Type I, Class 3**SCOTCH-WELD 2214-Hi Flex Epoxy Adhesive:**

Base Resin: Epoxy

Color: Gray

Viscosity (cps): Paste 200 Sec @ 23C

Full Cure Schedule: 40 Min. @ 121C or 10 Min. @ 149C or  
5 Min. @ 177C

Comments: Flexible/Deaerated/Metallic filled

**SCOTCH-WELD 2214 NMF Epoxy Adhesive:**

Base Resin: Epoxy

Color: Cream

Viscosity: Paste @ 100 Sec @ 23C

Full Cure Schedule: 40 Min @ 121C or 10 Min @ 149C or  
5 Min @ 177C

Comments: Good electrical properties/Non-metallic filled

**SCOTCH-WELD 2290 Epoxy Adhesive:**

Base Resin: Epoxy

Color: Amber

Viscosity (cps): Solution 40-80 cps

Full Cure Schedule: Dry 15 Min. @ 121C  
(B-Stage)

Cure 30 Min @ 177C

Comments: 21% solids B-stageable/Passes solder float @ 288C

**3M/Adhesives, Coatings and Sealers Division: Primers:**

**3901:**

Type: Adhesion Promoter

Viscosity: 3-7 cps

Color: Red

Base: Organo-Silane

Application Method:

Brush: Yes

Spray: Yes

Dip: No

Suggested For Use With:

Epoxies: Yes

Urethanes: Yes

Aluminum: Yes

Steel: Yes

Glass: Yes

Typically used as an epoxy and 2-part urethane adhesion promoter on stainless steel and galvanized metal

**3911:**

Type: Degreaser/Adhesion Promoter

Viscosity: 2-5 cps

Color: Off-white

Base: Organo-Silane Silicate

Application Method:

Brush: Yes

Spray: No

Dip: No

Suggested For Use With:

Epoxies: Yes

Urethanes: Yes

Aluminum: Yes

Steel: Yes

Glass: Yes

Used on oily or greasy metal as a one-step degreaser and primer.

**1945 B/A:**

Type: 2-Part Corrosion Inhibiting

Part A: 2-10 cps

Part B: 1100-1800 cps

Color: Green (Mixed)

Base: Epoxy

Application Method:

Brush: Yes

Spray: Yes

Dip: Yes

Suggested For Use With:

Epoxies: Yes

Urethanes: Yes

Aluminum: Yes

Steel: Yes

Glass: No

Sprayable 2-part epoxy primer used on metals, aluminum alloys, steel and cadmium plated steel to prohibit corrosion.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
DUO-PAK Adhesives:**

**DP-100 Clear:**

- \* Fast cure adhesive
- \* Rigid epoxy
- \* 15-20 min. handling strength
- \* Machineable product
- Mix Ratio (Volume): B:A: 1:1
- Viscosity 75F (24C) (cps): 13,000
- Worklife at 75F (24C): 4 Min.

**DP-100NS Translucent:**

- \* Fast cure adhesive
- \* Rigid epoxy
- \* 25-30 min. handling strength
- \* Translucent low flow version of DP-100
- Mix Ratio (Volume): B:A: 1:1
- Viscosity 75F (24C) (cps): 95,000
- Worklife at 75F (24C): 6 Min.

**DP-100 FR White:**

- \* Fast cure adhesive
- \* Rigid epoxy
- \* 25-30 min. handling strength
- \* Meets UL94V-O rating
- \* Self-extinguishing version of DP-100
- Mix Ratio (Volume): B:A: 1:1
- Viscosity 75F (24C) (cps): 50,000
- Worklife at 75F (24C): 6 Min.

**DP-110 Translucent:**

- \* Fast cure adhesive
- \* Flexible epoxy
- \* 30 min. handling strength
- \* Bonds dissimilar substrates
- Mix Ratio (Volume): B:A: 1:1
- Viscosity 75F (24C) (cps): 50,000
- Worklife at 75F (24C): 9 Min.

**DP-110 Gray:**

- \* Fast cure adhesive
- \* Flexible epoxy
- \* 30 min. handling strength
- \* Gray version of DP-110 trans.
- Mix Ratio (Volume): 1:1
- Viscosity 75F (24C) (cps): 50,000
- Worklife at 75F (24C): 9 Min.

**DP-190 Gray:**

- \* Long worklife adhesive
- \* Flexible epoxy
- \* 8-12 hrs. handling strength
- \* Bonds metals, plastics and other dissimilar materials
- Mix Ratio (Volume): 1:1
- Viscosity 75F (24C) (cps): 80,000
- Worklife at 75F (24C): 90 Min.

**DP-420 Off-White:**

- \* Medium worklife adhesive
- \* Toughened epoxy
- \* 1-2 hrs handling strength
- \* High performance product
- Mix Ratio (Volume): B:A: 2:1
- Viscosity 75F (24C) (cps): 45,000
- Worklife at 75F (24C): 20 Min.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD DUO-PAK Adhesives (Continued):**

**DP-460 Off-White:**

- \* Long worklife adhesive
- \* Toughened epoxy
- \* 2-4 hrs. handling strength
- \* Meets MIL-A-23941A
- \* Longer worklife DP-420 type product
- Mix Ratio (Volume) B:A: 2:1
- Viscosity 75F (24C) (cps): 45,000
- Worklife at 75F (24C): 60 Min.

**DP-260 Translucent:**

- \* Long worklife adhesive
- \* Rigid epoxy
- \* 8-12 hrs. handling strength
- \* Noncorrosive to copper
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 60,000
- Worklife at 75F (24C): 60 Min.

**DP-270 Clear:**

- \* Long worklife potting compound
- \* 8-12 hrs. handling strength
- \* Rigid epoxy
- \* Clear product for electronic applications
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 19,000
- Worklife at 75F (24C): 70 Min.

**DP-270 Black:**

- \* Long worklife potting compound
- \* 8-12 hrs. handling strength
- \* Rigid epoxy
- \* Black version DP-270 clear
- Mix Ratio (Volume) B:A: 1:1
- Approximate Viscosity 75F (24C) (cps): 19,000
- Worklife at 75F (24C): 70 Min.



**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD and PRONTO Brand Structural Adhesives: One-Part Epoxy Products:****1386:**

Overlap Shear Strength (psi) @ 75F (24C): 5500

Color: cream

Optimum Cure:

Time (min.): 60

Temp (F): 350

Pressure (psi): 10

Exceptionally high strength, impact resistant bonds on metal to metal. Meets MMM-A-134 Type III.

**1469:**

Overlap Shear Strength (psi) @ 75F (24C): 3700

Color: cream

Optimum Cure:

Time (min.): 120

Temp. (F): 350

Pressure (psi): 10

Superior performance at elevated temps. Meets MMM-A-132 Type II Class 3, Group 4.

**2086:**

Overlap Shear Strength (psi) @ 75F (24C): 5000

Color: gray

Optimum Cure:

Time (min.): 60

Temp. (F): 350

Pressure (psi): 10

Similar to 1386, but filled for superior flow control.

**2214 Regular:**

Overlap Shear Strength (psi) @ 75F (24C): 4500

Color: gray

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Aluminum-filled. Paste consistency. Bonds metals, glass, some plastics.

**2214 Hi-Density:**

Overlap Shear Strength (psi) @ 75F (24C): 4500

Color: gray

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Similar to 2214 reg., but deaerated and formulated for dense, void-free bond lines.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
and PRONTO Brand Structural Adhesives: One-Part Epoxy  
Products (Continued):**

**2214 Hi-Flex:**

Overlap Shear Strength (psi) @ 75F (24C): 4000

Color: gray

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Similar to 2214 reg., but deaerated and formulated for  
bonds with outstanding shock resistance

**2214 Hi-Temp:**

Overlap Shear Strength (psi) @ 75F (24C): 2000

Color: gray

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Formulated for outstanding performance at elevated temps  
and superior sag control.

**2214 Hi-Temp New Formula:**

Overlap Shear Strength (psi): 75F (24C): 2800

Color: gray

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Version of 2214 with increased resistance to elevated  
temps and ethylene glycol. Low exotherm.

**2214 Non-Metallic:**

Overlap Shear Strength (psi) @ 75F (24C): 4000

Color: cream

Optimum Cure:

Time (min.): 60

Temp (F): 250

Pressure (psi): 10

Cream-colored non-metallic version of 2214 reg.  
Suggested for electrical applications where resistance  
qualities are desired.

**2290:**

Overlap Shear Strength (psi) @ 75F (24C): 5000

Color: amber

Optimum Cure: B-Staging:

Time (min.): 15

Temp (F): 250

Pressure (psi): 0

Optimum Cure:

Time (min.): 30

Temp (F): 350

Pressure (psi): 50

21% solids liquid, B-stageable. Used in laminating  
steel cores for motor stators and rotors. Also for  
magnetic tape head laminations.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
and PRONTO Brand Structural Adhesives: Two Part Products  
(Mixed Colors):**

**1648 B/A Epoxy Green:**

Mixed Viscosity (cps) @ 75F (24C): 275,000

Overlap Shear Strength (psi) @ 75F (24C): 2500

Worklife (Min) @ 75F (24C): 60

Version of 1838 B/A with superior environmental resistance and performance at elevated temperatures.

**1751 B/A Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 700,000

Overlap Shear Strength (psi) @ 75F (24C): 2000

Worklife (Min) @ 75F (24C): 45

Aluminum-filled adhesive, mastic consistency. Outstanding adhesion to metal, especially steel. Good void filling.

**1751L B/A Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 250,000

Overlap Shear Strength (psi) @ 75F (24C): 2000

Worklife (Min) @ 75F (24C): 45

Lower viscosity version of 1751.

**1838 B/A Epoxy Green:**

Mixed Viscosity (cps) @ 75F (24C): 400,000

Overlap Shear Strength (psi) @ 75F (24C): 3000

Worklife (Min) @ 75F (24C): 60

Excellent environmental resistance. Bonds metals, woods, reinforced plastics and masonry products. Meets requirements of MIL-A-23941A.

**1838 B/A Epoxy Tan:**

Mixed Viscosity (cps) @ 75F (24C): 250,000

Overlap Shear Strength (psi) @ 75F (24C): 3000

Worklife (Min) @ 75F (24C): 60

Tan version of 1838 B/A.

**1838L B/A Epoxy Translucent:**

Mixed Viscosity (cps) @ 75F (24C): 10,000

Overlap Shear Strength (psi) @ 75F (24C): 3000

Worklife (Min) @ 75F (24C): 60

Translucent, lower-viscosity version of 1838 B/A.

**2158 B/A Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 375,000

Overlap Shear Strength (psi) @ 75F (24C): 2000

Worklife (Min) @ 75F (24C): 120

General purpose, room-temperature-curing. Equal mix ratio and contrasting colors of base and accelerator make mixing easy and accurate.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
and PRONTO Brand Structural Adhesives: Two Part Products  
(Mixed Colors) (Continued):**

**2216 B/A Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 80,000  
Overlap Shear Strength (psi) @ 75F (24C): 2500  
Worklife (Min) @ 75F (24C): 90

Flexible room temperature curing with high shear and peel strengths. Bonds rubber, metal, wood, most plastics and masonry products.

**2216 B/A Epoxy Translucent:**

Mixed Viscosity (cps) @ 75F (24C): 10,000  
Overlap Shear Strength (psi) @ 75F (24C): 2000  
Worklife (Min) @ 75F (24C): 16-20 hours  
A translucent version of 2216 B/A.

**3501 B/A Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 500,000  
Overlap Shear Strength (psi) @ 75F (24C): 2400  
Worklife (Min) @ 75F (24C): 5-7

Rapid room-temp-curing modified epoxy. Bonds metal, wood, most plastics & masonry products.

**DP-100 Epoxy Clear:**

Mixed Viscosity (cps) @ 75F (24C): 13,000  
Overlap Shear Strength (psi) @ 75F (24C): 1500  
Worklife (Min) @ 75F (24C): 3-5

A fast-setting, clear epoxy that is flowable and machineable. Handling strength in 15 minutes.

**DP-100 FR Epoxy Off-white:**

Mixed Viscosity (cps) @ 75F (24C): 50,000  
Overlap Shear Strength (psi) @ 75F (24C): 1400  
Worklife (Min) @ 75F (24C): 5-7

A fire-retardant self-extinguishing version of DP-100 that passes FAA-14CFR 25.853 vertical burn test. Meets UL 94VO.

**DP-100 NS Epoxy Translucent:**

Mixed Viscosity (cps) @ 75F (24C): 95,000  
Overlap Shear Strength (psi) @ 75F (24C): 1500  
Worklife (Min) @ 75F (24C): 5-7  
A non-flowing version of DP-100.

**DP-110 Epoxy Translucent:**

Mixed Viscosity (cps) @ 75F (24C): 50,000  
Overlap Shear Strength (psi) @ 75F (24C): 2500  
Worklife (Min) @ 75F (24C): 8-10

A fast-setting flexible translucent epoxy. Handling strength in 25 minutes.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
and PRONTO Brand Structural Adhesives: Two-Part Products  
(Mixed Colors) (Continued):**

**DP-110 Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 50,000  
Overlap Shear Strength (psi) @ 75F (24C): 2500  
Worklife (Min) @ 75F (25C): 8-10  
A gray version of DP-110 Translucent.

**DP-190 Epoxy Gray:**

Mixed Viscosity (cps) @ 75F (24C): 80,000  
Overlap Shear Strength (psi) @ 75F (24C): 2200  
Worklife (Min) @ 75F (24C): 90  
A slower setting flexible epoxy ideal for bonding a variety of plastics, metal, rubber and glass. A 1:1 mix ratio of 2216 B/A Gray.

**DP-420 Epoxy Off-white:**

Mixed Viscosity (cps) @ 75F (24C): 45,000  
Overlap Shear Strength (psi) @ 75F (24C): 4500  
Worklife (Min) @ 75F (24C): 20  
A high performance epoxy with outstanding peel strength and shear strength. 20 minute worklife.

**DP-460 Epoxy Off-white:**

Mixed Viscosity (cps) @ 75F (24C): 45,000  
Overlap Shear Strength (psi) @ 75F (24C): 4500  
Worklife (Min) @ 75F (24C): 60  
A longer worklife high performance epoxy like DP-420.  
Meets requirements of MIL-A-23941A.

**DP-260 Epoxy Translucent:**

Mixed Viscosity (cps) @ 75F (24C): 60,000  
Overlap Shear Strength (psi) @ 75F (24C): 2800  
Worklife (Min) @ 75F (24C): 60  
Controlled-flow epoxy with outstanding electrical properties. Excellent electrolytic corrosion resistance.

**DP-270 Epoxy Potting Compound Clear:**

Mixed Viscosity (cps) @ 75F (24C): 19,000  
Overlap Shear Strength (psi) @ 75F (24C): 2500  
Worklife (Min) @ 75F (24C): 70  
Clear epoxy for potting and encapsulating of electrical components. Excellent electrolytic corrosion resistance.

**DP-270 Epoxy Potting Compound Black:**

Mixed Viscosity (cps) @ 75F (24C): 19,000  
Overlap Shear Strength (psi) @ 75F (24C): 2500  
Worklife (Min) @ 75F (24C): 70  
A black version of DP-270 Clear. Excellent electrolytic corrosion resistance.

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
One-Part Epoxy Adhesives:**

**1386 Cream:**

A 350F curing epoxy developed for metal to metal bonding provides exceptionally high strength, impact resistant bonds. Meets requirements of MMM-A-134 Type III.

Viscosity: 150,000 cps

Optimum Cure:

Time (Min): 60

Temp (F/C): 350/177

Pressure (psi): 10

**1469 Cream:**

A 350F curing epoxy with superior performance at elevated temperatures. Meets requirements of MMM-A-132 Type II Class 3, Group 4.

Viscosity: 60,000 cps

Optimum Cure:

Time (Min): 120

Temp (F/C): 350/177

Pressure (psi): 10

**2086 Gray:**

A 350F curing epoxy similar to 1386 but filled to provide superior flow control.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (F/C): 350/177

Pressure (psi): 10

**2214 Regular Gray:**

Aluminum filled heat curing (250F) structural adhesive of paste consistency. Bonds metals, glass and many plastics.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (F/C): 250/121

Pressure (psi): 10

**2214 Hi-Dense Gray:**

Similar to 2214 regular but deaerated and specifically formulated to provide dense, void-free bond lines.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (F/C): 250/121

Pressure (psi): 10

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
One-Part Epoxy Adhesives (Continued):****2214 Hi-Temp Gray:**

Specifically formulated to provide outstanding performance at elevated temperatures and superior sag control.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (C/F): 250/121

Pressure (psi): 10

**2214 Hi-Temp New Formula Gray:**

A version of 2214 Hi-Temp with exceptional performance at elevated temperatures and excellent performance under high temperature high humidity conditions. Resists attack by hot ethylene glycol.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (C/F): 250/121

Pressure (psi): 10

**2214 Hi-Flex Gray:**

Similar to 2214 regular but deaerated and specifically formulated to provide bonds featuring outstanding shock resistance.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (F/C): 250/121

Pressure (psi): 10

**2214 Non-metallic Filled Cream:**

A cream colored non-metallic version of 2214 regular suggested for electrical applications where insulating qualities are desired.

Viscosity: Paste

Optimum Cure:

Time (Min): 60

Temp (F/C): 250/121

Pressure (psi): 10

**2290 Amber:**

A 21% solids liquid epoxy B-stageable. Used in laminating steel cores for motor stators and rotors. Excellent for thin metal stack laminations such as those used in magnetic tape heads.

Viscosity: 60 cps

Optimum Cure:

Time (Min): 30

Temp (F/C): 350/177

Pressure (psi): 50

**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD Two-Part Epoxy Adhesives:**

**1648 B/A Green:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* Higher performing product at elevated temperatures
- Mix Ratio (Volume) B:A: 6.5
- Viscosity 75F (24C) (cps): 275,000
- Worklife at 75F (24C): 60 Min

**1751 B/A Gray:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* Excellent void filler and machineable for "Body Solder" applications
- Mix Ratio (Volume) B:A: 3:2
- Viscosity 75F (24C) (cps): 700,000
- Worklife at 75F (24C): 45 Min

**1751-L B/A Gray:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* Lower viscosity version of 1751
- Mix Ratio (Volume) B:A: 3:2
- Viscosity 75F (24C) (cps): 250,000
- Worklife at 75F (24C): 45 Min

**1838 B/A Green:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength      \* Meets MIL-A-23941A
- \* Excellent Environmental Resistance
- Mix Ratio (Volume) B:A: 4:5
- Viscosity 75F (24C) (cps): 400,000
- Worklife at 75F (24C): 60 Min

**1838 B/A Tan:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* Tan version of 1838 Green
- Mix Ratio (Volume): 6:5
- Viscosity 75F (24C) (cps): 250,000
- Worklife at 75F (24C): 60 Min

**1838-L B/A Translucent:**

- \* Long worklife adhesive      \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* Translucent, low viscosity version of 1838 Green
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 10,000
- Worklife at 75F (24C): 60 Min



**3M/Adhesives, Coatings and Sealers Division: SCOTCH-WELD  
Two-Part Epoxy Adhesives (Continued):****2158 B/A Gray:**

- \* Long worklife adhesive           \* Rigid Epoxy
- \* 8-12 hrs. handling strength
- \* General Purpose Product
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 375,000
- Worklife at 75F (24C): 120 Min

**2216 B/A Gray:**

- \* Long worklife adhesive           \* Flexible Epoxy
- \* 8-12 hrs. handling strength
- \* Bonds plastic, metal and other dissimilar materials
- Mix Ratio (Volume) B:A: 2:3
- Viscosity 75F (24C) (cps): 80,000
- Worklife at 75F (24C): 90 Min

**2216 B/A Translucent:**

- \* Long worklife adhesive           \* Flexible Epoxy
- \* 16-20 hrs. handling strength
- \* Translucent version of 2216 B/A Gray
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 10,000
- Worklife at 75F (24C): 120 Min

**3501 B/A Gray:**

- \* Fast cure adhesive               \* Rigid Epoxy
- \* 20-30 minutes handling strength
- \* Rapid room temp. curing material that bonds metal,  
  wood, most plastics and masonry products
- Mix Ratio (Volume) B:A: 1:1
- Viscosity 75F (24C) (cps): 500,000
- Worklife at 75F (24C): 7 Min

**TRA-CON, INC.: Epoxy Adhesive Systems:**

**High Performance Adhesives:**

**TRA-BOND 2101:**

General purpose, medium viscosity adhesive  
Color: Clear, slight haze  
Specific Gravity: 1.20  
Typical Viscosity cps @ 25C.: 19,000

**TRA-BOND 2106T:**

Fast cure (five minute) thixotropic system  
Color: Straw, translucent  
Specific Gravity: 1.22  
Typical Viscosity cps @ 25C.: >250,000

**TRA-BOND 2112:**

Thixotropic, rigid epoxy staking compound  
Color: Milky, translucent  
Specific Gravity: 1.20  
Typical Viscosity cps @ 25C.: >27,000

**TRA-BOND 2115:**

Clear, high impact, low viscosity epoxy adhesive  
Color: Clear, transparent  
Specific Gravity: 1.22  
Typical Viscosity cps @ 25C.: 180

**TRA-BOND 2116:**

Low vapor pressure epoxy staking compound (Passes NASA  
Outgassing Specification)  
Color: Milky, translucent  
Specific Gravity: 1.26  
Typical Viscosity cps @ 25C.: >100,000

**TRA-BOND 2122:**

Metal repair, aluminum epoxy adhesive  
Color: Aluminum  
Specific Gravity: 1.45  
Typical Viscosity cps @ 25C.: 60,000

**TRA-BOND 2123:**

Metal repair, steel epoxy adhesive  
Color: Steel (gray)  
Specific Gravity: 2.35  
Typical Viscosity cps @ 25C.: 32,000

**TRA-BOND 2129:**

Clear, low viscosity epoxy adhesive  
Color: Clear, transparent  
Specific Gravity: 1.19  
Typical Viscosity cps @ 25C.: 1,900

**TRA-CON, INC.: Epoxy Adhesive Systems (Continued):****High Performance Adhesives (Continued):****TRA-BOND 2135D:**

High impact, medium viscosity epoxy adhesive

Color: Light amber

Specific Gravity: 1.11

Typical Viscosity cps @ 25C.: 1,200

**TRA-BOND 2143D:**

Polyamide/epoxy, medium viscosity adhesive

Color: Light amber

Specific Gravity: 1.12

Typical Viscosity cps @ 25C: 30,000

**TRA-BOND 2151:**Heat conductive, electrical insulating compound (Passes  
NASA Outgassing Specification)

Color: Light blue

Specific Gravity: 2.30

Typical Viscosity cps @ 25C: 33,000

**TRA-BOND 2202:**

Clear, low viscosity high temperature adhesive

Color: Clear, transparent

Specific Gravity: 1.21

Typical Viscosity cps @ 25C: 1,740

**Casting Systems:****TRA-CAST 3010:**

Flexible clear casting compound

Color: Clear

Specific Gravity: 1.12

Typical Viscosity cps @ 25C: 500

**TRA-CAST 3103:**

General purpose black casting compound

Color: Black

Specific Gravity: 1.58

Typical Viscosity cps @ 25C: 8,000

**TRA-CAST 3140:**

Fire retardant casting compound

Color: Ivory

Specific Gravity: 1.65

Typical Viscosity cps @ 25C: 2,750

**TRA-CON, INC.: Epoxy Adhesive Systems (Continued):**

**Fiber Optic Adhesives:**

**TRA-BOND F114:**

Optically clear blush-free adhesive

Color: Clear, transparent

Specific Gravity: 1.10

Typical Viscosity cps @ 25C: 400

**TRA-BOND F120:**

Fast cure (five minute) epoxy adhesive

Color: Transparent, straw

Specific Gravity: 1.22

Typical Viscosity cps @ 25C: 15,500

**TRA-BOND F156:**

Optically opaque adhesive

Color: Black

Specific Gravity: 1.58

Typical Viscosity cps @ 25C: 50,000

**TRA-BOND F253:**

Color-keyed cure-high temperature

Color: Clear red/amber

Specific Gravity: 1.15

Typical Viscosity cps @ 25C: 1,950

**Electrically Conductive Adhesives:**

**TRA-DUCT 2902:**

Conductive silver paste epoxy adhesive

Color: Silver

Specific Gravity: 2.45

Volume Resistivity: 0.0010 ohm-cm

**TRA-DUCT 2924:**

High temperature, conductive epoxy adhesive

Color: Silver

Specific Gravity: 2.65

Volume Resistivity: 0.0005 ohm-cm

**TRA-CON, INC.: Fiber Optics Adhesive and Casting Systems:****TRA-BOND F110:**

General purpose optically transparent, low viscosity epoxy adhesive

Color: Transparent Clear

Specific Gravity: 1.16

Operating Temperature C: -60 to 130

Viscosity, Centipoise: 300

Mix Ratio by Weight H/R: 11/110

For bonding glass or plastic optics, optical fibers. Used widely in instrumentation applications.

**TRA-BOND F113:**

High-Impact optically clear epoxy adhesive

Color: Transparent Clear

Specific Gravity: 1.22

Operating Temperature C: -60 to 100

Viscosity, Centipoise: 180

Mix Ratio by Weight H/R: 30/100

Superior wicking. For bonding opto-electronic lens displays. SMA connectors. Excellent glass/glass bonds.

**TRA-BOND F1135SC:**

High-Impact high contrast epoxy adhesive

Color: Blue

Specific Gravity: 1.22

Operating Temperature C: -60 to 100

Viscosity, Centipoise: 2,250

Mix Ratio by Weight H/R: 30/100

High contrast dark blue, superior wicking. For bonding and sealing SMA connectors. Excellent bonds.

**TRA-BOND F114:**

Clear blush-free epoxy adhesive

Color: Transparent Clear

Specific Gravity: 1.16

Operating Temperature C: -60 to 130

Viscosity, Centipoise: 280

Mix Ratio by Weight H/R: 50/100

Blush-free, clear low viscosity adhesive. For fiber-optic, lens and prism assembly and repair applications.

**TRA-BOND F117:**

Spectrally transparent epoxy adhesive

Color: Transparent Clear

Specific Gravity: 1.20

Operating Temperature C: -60 to 125

Viscosity, Centipoise: 880

Mix Ratio by Weight H/R: 30/100

Bubble-free adhesive. Filter mounting, coating or sealant for glass or plastic electronic display devices.

**TRA-CON, INC.: Fiber Optics Adhesive and Casting Systems  
(Continued):**

**TRA-BOND F120:**

Fast cure (5 minute) epoxy adhesive  
Color: Transparent Straw  
Specific Gravity: 1.22  
Operating Temperature C: -60 to 115  
Viscosity, Centipoise: 15,500  
Mix Ratio by Weight H/R: 93/100  
Convenient, fast bonding at room temperature. For attachment and back filling of plastic duplex connectors.

**TRA-BOND F141:**

Flexible polysulfide epoxy adhesive  
Color: Amber  
Specific Gravity: 1.21  
Operating Temperature C: -60 to 115  
Viscosity, Centipoise: 2,200  
Mix Ratio by Weight H/R: 110/100  
Can withstand extreme temperature cycling. Excellent bonds in thin and thick film applications.

**TRA-BOND F156:**

Optically opaque epoxy adhesive  
Color: Black  
Specific Gravity: 1.58  
Operating Temperature C: -60 to 130  
Viscosity, Centipoise: 50,000  
Mix Ratio by Weight H/R: 12/100  
For high strength optical bonding and sealing where opacity to light is required.

**TRA-BOND F202:**

Spectrally transparent, high temperature epoxy adhesive  
Color: Transparent Clear  
Specific Gravity: 1.18  
Operating Temperature C: -60 to 175  
Viscosity, Centipoise: 1,030  
Mix Ratio by Weight H/R: 3/100  
Forms high-strength/temperature-resistant bonds. Excellent for potting small components. Long pot life.

**TRA-BOND F211:**

General purpose high temperature epoxy adhesive  
Color: Amber  
Specific Gravity: 1.21  
Operating Temperature C: -60 to 175  
Viscosity, Centipoise: 9,800  
Mix Ratio by Weight H/R: 20/100  
For bonding glass, metals, and ceramics used in high temperature environments. Requires heat curing.

**TRA-CON, INC.: Fiber Optics Adhesive and Casting Systems  
(Continued):**

**TRA-BOND F230:**

Color-keyed cure, high temperature epoxy adhesive  
Color: Clear, Lt. Yel., Clear, Green, Red-Amber  
Specific Gravity: 1.15  
Operating Temperature C: -60 to 180  
Viscosity, Centipoise: 1,950  
Mix Ratio by Weight H/R: 10/100  
Unique color/cure feature. For high strength ferrule bonding  
of SMA "pot/polish" connectors.

**TRA-BOND F253:**

Color-keyed cure, high temperature epoxy adhesive  
Color: Clear, Lt. Yel., Green-Blue, Red-Amber  
Specific Gravity: 1.15  
Operating Temperature F: -60 to 175  
Viscosity, Centipoise: 1,980  
Mix Ratio by Weight H/R: 10/100  
Unique color/cure feature. Longer pot life for bonding SMA  
"pot/polish" connectors.

**UNITED STATES GYPSUM: EPOXICAL Casting Resins/300 Series:**

**301:**

**Thick-Section Casting Resin (Gray)**

An aluminum-filled, general-purpose casting resin for pattern and tool thicknesses 1/32 to 3/4 in. When mixed with aluminum grain in a 1:1 ratio, this resin can be cast up to 1 1/2 in. It has excellent machining characteristics and also is used extensively for casting Kirksite and steel die facings and die models with mahogany back-up structures. It is recommended for casting prototype piece parts in silicone rubber molds.

**303:**

**Low-Viscosity Casting Resin (Black)**

An iron-filled casting resin with a low viscosity to pour through small vent or sprue holes in closed molds. The non-settling resin system is comparable to 301 casting resin with wide casting range of pattern thickness of 1/2 to 4 in. when used with specified hardeners.

**305:**

**Mass-Casting Resin (Black)**

Designed to pour tool thicknesses from 2 to 5 in. This low-cost, iron-filled casting compound is also somewhat resilient to provide excellent impact strength for hammer forms, mass-cast core boxes, and foundry patterns where weight is not a factor. Can be cast up to 8 to 10 in. when mixed one part resin with 1 1/2 parts aluminum grain.

**308:**

**Mass-Casting Resin (Black)**

Designed to pour mass-cast tools, patterns and metal stamping dies in thicknesses from 5 to 8 in. This low-cost, iron-filled casting compound also will cure in thicknesses of 3/4 to 2 in. when tool thickness varies from thin to very heavy sections. Not recommended for use with aluminum grain.

**310:**

**Medium Hy-Temp Mass Casting Resin (Aluminum)**

For cast vacuum-forming molds and models and high-temperature injection molds for prototype piece parts. This aluminum-filled resin is used to cast large tools that previously had to be machined or laminated. Low viscosity offers fine detail pick-up. Resin can be used in nonmetallic molds to 1-in. thickness, in aluminum or steel molds to 2-in. thickness. Can be used with aluminum grain to cast up to 3-4 in.

**312:**

**Casting Epoxy Foam (White)**

Designed as a white casting resin for prototype piece parts that can be poured from 1/8 to 3/4 in. thick.

**330:**

**Hy-Temp Mass-Casting Resin (Aluminum)**

Aluminum-filled, high-temperature mass-casting resin with properties approaching those of metallic aluminum. Offers excellent machinability properties. Recommended for cast vacuum molds, models for prototype piece parts, and large castings



**UNITED STATES GYPSUM: EPOXICAL Surface Coat Resins/400 Series:****401:****Surface Coat Resin (Blue)**

A general-purpose surface coat for tool and pattern applications where a laminated structure is used. Has good brushing characteristics, 25-minute pot life and is recommended for use with 501 Blue Laminating Resin. Highly applicable for foundry, air-craft, and plastic industry applications.

**403:****Die Surface Resin (Blue-Gray)**

A silicon carbide-filled surface coat with good brushing characteristics and excellent abrasion or wear characteristics. Recommended for slinger patterns, blow boxes, and metal forming ideas fabricated by laminating techniques. Resin can be thinned slightly and used as a wear-resistant coating for wood foundry patterns. Difficult to machine.

**404:****Machinable Die Surface Resin (Black)**

A surface-coat resin with good brushing characteristics and excellent wear resistance. Machining if design or engineering changes are necessary. For surface-casting applications to 1/2 in. thick for foundry patterns with a metal core back-up or die facing for Kirksite or steel stamping dies.

**408:****Hy-Temp Surface Coat (Black)**

Iron-filled, high-heat material for use with 503 Hy-Temp Laminating Resin. Cures overnight at room temperature, and an oven postcure is recommended. Can be used for bonding fixtures, vacuum forming tools, molds for polyester hand lay-up, and bag molding.

**412:****Surface Coat (Aluminum)**

For use with 508 Aluminum Laminating Resin. High-quality resin system operating in 200-250F. range with room-temperature cure.

**415:****Thixotropic Surface Coat (White)**

Designed for use in the plastic-faced plaster technique. Reduced viscosity provides better brushability and minimizes air entrapment. 415 also can be used as a general-purpose surface coat for laminating tool and pattern structures.

**UNITED STATES GYPSUM: EPOXICAL Laminating Resins/500 Series:**

**501:**

**General-Purpose Laminating Resin (Blue)**

A dimensionally stable, room-temperature laminating compound with good wetting characteristics. Glass cloth can be built up to 1/4 to 3/8 in. without periodic work stoppage to permit laminate to cool each time before completing tool or pattern. Characteristics light-blue color permits color coding for tool-program identification. Recommended wherever a 25-30 minute pot life is desired.

**503:**

**Hy-Temp Laminating Resin (Black)**

Recommended for aircraft bonding fixtures, large laminated vacuum-forming molds for car bodies, and urethane cure molds where 450 to 500F. performance temperatures are required. Tried and proven in the aircraft and aerospace programs, it is considered the best high-temperature system for laminated structures. Cures at room temperature overnight before the oven post-cure cycle.

**504:**

**Clear Laminating Resin (Amber)**

An excellent laminating resin for hand lay-up or bag molding of translucent panels, patterns, or tool structures. It also can be used as a binder for sand or metal aggregates.

**507:**

**Automotive Laminating Resin (White)**

A low-viscosity system with excellent wetting qualities for virtually all tooling and pattern applications. Excellent dimensional stability to meet close-tolerance automotive and aircraft specifications. Cures at room temperature in 6-8 hours. Laminated tools have a heat distortion of 190-200F. This is USG's best automotive laminating resin.

**508:**

**Aluminum Medium Hy-Temp Laminating Resin**

Designed for intermediate-temperature-range applications (250 to 325F.). Has excellent wetting characteristics for fast tool build-up.

**520:**

**Gunk Laminating Compound (Blue)**

An easy-to-use laminating paste for general-purpose tooling and case-mold applications. Compound is premixed with glass fibers and epoxy resins to make laminations easier than with traditional methods. Ideal for applications not requiring high performance. Can be used with several layers of glass cloth for greater strength.

**530:**

**Hy-Temp Gunk Laminating Compound (Red)**

Generally the same properties as 520 compound but has higher heat resistance.

**UNITED STATES GYPSUM: EPOXICAL Paste Compounds & Adhesives/600 Series:****600:****Fast Pattern Putty (Mahogany)**

An easy-to-use, 1:1 mix-ratio, lightweight paste for pattern fillets, booking and checking core boxes and wood pattern build-up. Has excellent adhesive and carving characteristics for pattern and modelmaking, and can be used as a body solder. All putty compounds are ideally suited for filling, splining and filleting of all pattern-making materials.

**603:****Carvable Aluminum Compound (Gray)**

A lightweight, aluminum-filled carvable compound for troweling on tool surfaces, filling honeycomb core and edge surfaces. Has excellent dimensional stability and good machining qualities for use as numerical control model for checking out programmed tapes.

**606:****Paste Adhesive (Gray)**

A 1:1 mix ratio, paste patching adhesive for repairing metal foundry patterns, blow holes in castings and most maintenance jobs where a paste compound is needed. Has excellent adhesive qualities on virtually all materials and is the standard of the industry for gluing formed ABS piece parts. Equally outstanding for home uses as well as industrial applications. Cures at room temperature in several hours.

**609-A:****Paste Adhesive**

A 1:1-mix ratio, high-temperature adhesive paste to repair or patch cast or laminated epoxy tools which are subject to 250-300F use temperatures.

**610:****Paste Adhesive (Clear)**

Same as 606 paste except clear in color. Recommended for repair of ceramic lavatory ware to make rejects salable. Colors can be added to match ceramic tile and bathroom fixtures. Has excellent adhesive qualities for repairing fine china.

**WESTINGHOUSE ELECTRIC CORP.: WESTINGHOUSE Resin Kits, Compounds and Adhesives:**

**Buttering Compound:**

**B-7-610:**

Thixotropic epoxy buttering compound. Specifically formulated as a paste for troweling on stator and armature coil ends.

**Casting, Filling, Brushing, Spraying:**

**B-7-611:**

Highly flexible epoxy with excellent high temperature capabilities. Designed for electro magnets, ballast transformers, and small transformer cores.

**B-7-300:**

Gap filling compound. Thixotropic thermosetting epoxy compound suitable for filling gaps or voids in insulating structures. Can be trowel or pressure gun applied. Cures to hard void free finish. Excellent chemical, electrical and moisture resistant properties.

**B-7-302:**

Thixotropic thermosetting epoxy compound. B-7-302 is more viscous than B-7-300 allowing a thicker coating to be deposited. Excellent to fill the gap in pole and field coils. Excellent adhesion makes it a good sealant for component parts.

**B-7-343:**

A modified, filled, thixotropic, thermosetting epoxy was especially developed for casting and encapsulating applications. This orange in color material cures at room temperature and offers excellent chemical, electrical and moisture resistant properties in a wide range of applications. Navy approved and specified.

**B-7-347:**

A viscous epoxy resin for filling and sealing. Excellent for DC-exciter commutators.

**BT-5260:**

Thixotropic, thermosetting epoxy compound. Designed to fill gaps or deep seated openings in insulation by traveling into substrates.

**WESTINGHOUSE ELECTRIC CORP.: WESTINGHOUSE Resin Kits, Compounds and Adhesives (Continued):**

**Casting, Filling, Brushing, Spraying (Continued):**

**B-2-119:**

Brushing bond. A black rigid filled low density epoxy. Developed for AC coils with low shrinkage at room or elevated temperatures.

**B-7-612:**

Thixotropic spray epoxy kit. Designed as a spray-on for motors and transformers as B-7-612 will not sag.

**Special Purpose Compounds and Resins:**

**B-101:**

Epoxy core bond. An epoxy adhesive characterized by high bonding and dielectric strength. Designed for bonding rigid structures such as steel laminations in transformers and other applications where flexibility is not required.

**B-6-641:**

Arc and track resistant epoxy coating. A thixotropic epoxy compound having excellent arc and track resistance.

**B-7-160:**

THERMALASTIC is a premium high voltage epoxy insulation system for impregnation where peak electrical strength, long-term voltage endurance, moisture resistance, chemical resistance, thermal endurance, thermal cycling, mechanical strength and abrasion resistance is required.

**B-7-345:**

Epoxy trickle kit for repair of electric integral H.P. motors. Reduced turn around time and ease of use make B-7-345 an ideal repair trickle.

**Flow On, Pour On, Compounds:**

**B-7-613:**

Flow on epoxy. Specifically designed for impregnating and sealing stators, coils and transformers.

**Adhesives:**

**B-2-143:**

Epoxy bond adhesive. Epoxy adhesive for use in the manufacture of mica paper tapes.

**B-271:**

Modified epoxy resin for use as a binder in the manufacture of mica tapes, wrappers and similar composites.

**ZYMET, INC.: General Purpose Adhesives:**

Use ZYMET general purpose adhesives for grounding and shielding, bonding wave guide plumbing, plating base, solder replacement, connecting heat sensitive components, and printed circuit board repair.

**DY 312:**

One component, silver-filled, electrically conductive epoxy.

**DY 412:**

Gold-filled version of DY 312. Use where silver migration may be a problem.

**DY 325:**

Two component, silver-filled, electrically conductive epoxy. 1:1 mix ratio, 1 hour pot life. Apollo Moon Mission approved.

**DY 335:**

Low cost, two component, electrically conductive epoxy. 100:6 mix ratio, 1 hour pot life.

**DY 336:**

Low cost, two component, electrically conductive epoxy. 1:1 mix ratio, 2 hour pot life.

**DY 1931:**

Two component, silver-filled, electrically conductive epoxy. Meets Federal Specification MMM-A-1931 Type I and Type II. 10:1 mix ratio, 1 hour minimum pot life. Excellent for bonding nichrome to nichrome wire or conductive plastics, and installation of static discharge base to exterior aircraft surfaces.

**ZYMET INC.: Microelectronic Adhesives:**

Use ZYMET microelectronic adhesives for die attach, hybrid attach, substrate attach, chip bonding, and surface mount. They are non-corrosive and contain very low ionic contaminants.

**SL-1X Series:**

One component, silver-filled, electrically conductive epoxy adhesives.

**SL100-1X:**

Lowest volume resistivity.

**SL 75-1X:**

Excellent properties at lower cost than SL100-1X.

**SL 60-1X:**

Excellent properties at lower cost than SL 75-1X.

**SL-2X Series:**

One component, silver-filled, electrically conductive epoxy adhesives, designed to withstand the high temperatures used in thermal compression wire bonding of semiconductor devices.

**SL100-2X:**

Lowest volume resistivity.

**SL 75-2X:**

Excellent properties at lower cost than SL100-2X.

**SL 60-2X:**

Excellent properties at lower cost than SL 75-2X.

**SL100-3X:**

One component, silver-filled, electrically conductive adhesive, designed to withstand thermal compression wire bonding temperatures of 350C and above.

**SLT-03:**

Two component, silver-filled, electrically conductive epoxy adhesive. 1:1 mix ratio, 4 day pot life.

**Electronic Grade General Adhesive:**

**ZYVAX 600:**

Two component epoxy adhesive, excellent for insulation and protection, conductive path bonding, wire hold down. Supplied in plastic dual syringes with self-contained mixer/applicator nozzles.

## **Section IV**

# **Miscellaneous Modifiers**



**CARDOLITE CORP.: CARDOLITE Products for Epoxy Formulating:**

**CARDOLITE NC-513:**

low viscosity reactive flexibilizer

**Typical Properties:**

Visc: 50 cps  
WPE: 490  
Sp G: 0.97  
Color: 13  
Flash Pt: 400F  
PHR: 10-40

**Benefits/Features:**

* Low volatility	* Low toxicity
* Reduce viscosity	* Increases flexibility
* Excellent electricals	* Improves shear/impact
* Improved dimensional stability	
* Improved acid resistance	* Prevents crystallization

**Applications:**

Flooring: acid resistant/self-leveling	
Coatings	Tooling
Potting/Encapsulation	Adhesives
Laminates	Adduct preparation

**CARDOLITE NC-548:**

accelerator and diluent

**Typical Properties:**

Visc: 20 cps  
Color: 17  
Lbs/Gal: 8.17  
Flash Pt: >500F  
PHR: to 25

**Benefits/Features:**

* Low volatility	* Low toxicity
* Reduce viscosity	* Maintains chemical/water resistance
* Low ionic content	
* Low cost	

**Applications:**

Electrical/Electronics	Coatings
Adducting	Adhesives

**CARDOLITE NC-700:**

accelerator

**Typical Properties:**

Visc: 115 cps  
Sp Gr: 0.94  
Color: 16  
Flash Pt: 500F  
PHR: to 20

**Benefits/Features:**

* Reduce viscosity	* Decrease gel time
* Little-no effect on physicals and chemical resistance	
* Low cost	* Increases flexibility

**Applications:**

Coatings	Flooring
Impregnating	Adhesives

**CARDOLITE CORP.: CARDOLITE Products for Epoxy Formulating  
(Continued):**

**CARDOLITE NC-1307:**  
extender and flexibilizer

**Typical Properties:**

Visc: 300 cps  
Sp Gr: 1.03  
Color: 8  
Flash Pt.: 118F  
OH No.: 26  
PHR: to 100

**Benefits/Features:**

- \* Promotes adhesion
- \* Stable in resin and hardener portions
- \* Improves trowelability, concrete and coatings
- \* Low cost
- \* Excellent heat stability
- \* Allows for easy mixing ratios

**Applications:**

Concrete Flooring	Coatings
Tooling	Potting/Encapsulation Adhesives
High Solids	

**CARDOLITE NC-552:**  
high performance viscosity reducer

**Typical Properties:**

Visc: 15-40 cps  
Sp Gr: 1.11  
Color: 18  
PHR: to 20  
Flash Pt: 186F

**Benefits/Features:**

- \* Reduce viscosity
- \* In acid or anhydride system, improves thermal and electrical properties
- \* Improves acid resistance

**Applications:**

Adhesives	Electrical/Electronics
-----------	------------------------

**CARDOLITE NC-547:**  
epoxy novolac resin

**Typical Properties:**

Visc: <50,000 cps  
EEW: 600  
Color: 18  
Flash Pt: 150F  
Tg: -5C-15C

**Benefits/Features:**

- \* Low temperature flexibility
- \* Tri-functional
- \* Improves water resistance
- \* FDA acceptance for 175.300

**Applications:**

Adhesives	Potting/Encapsulation
Coatings	

**CARDOLITE CORP.: CARDOLITE Products for Epoxy Formulating  
(Continued):**

**CARDOLITE NC-514:**  
epoxy resin

**Typical Properties:**

Visc: 25,000 cps

EEW: 350

Color: 17

Flash Pt: >400F

**Benefits/Features:**

- |                            |                            |
|----------------------------|----------------------------|
| * Extremely flexible/tough | * Wide compatibility       |
| * Noncrystallizing         | * Good water resistance    |
| * Chip resistance          | * Thermal shock resistance |

**Applications: Adhesives**

Coatings: flexible/tank linings/automotive primers

**CARDOLITE NC-551:**  
difunctional epoxy resin

**Typical Properties:**

Visc: 600 cps

EEW: 225

Color: 17

Flash Pt: 170F

**Benefits/Features:**

- |                    |                              |
|--------------------|------------------------------|
| * Flexible/tough   | * Heat Cure/Anhydride system |
| * Reduce viscosity | * Thermal shock resistance   |

**Applications:**

Electrical/Electronics

Adhesives

**CARDOLITE NC-540:**  
phenalkamine curing agent

**Typical Properties:**

Visc @ 25C: 2500 cps

Amine eq: 108

Act H eq: 81

Lbs/Gal: 8.27

Color: 16

PHR: 35-45

Solids: >96%

Gel Time: 35 min

**Benefits/Features:**

- |   |                       |
|---|-----------------------|
| * Fast cures  | * Wide compatibility  |
| * No induction period   | * Good flexibility    |
| * Good physicals  | * Moisture resistance |
| * Non-critical mixing ratios                                      | during cure           |
| * Outstanding salt water resistance                               |                       |
| * Excellent chemical resistance (especially to acids and alkalis) |                       |
| * Adhesion to non-perfect surfaces                                |                       |

**Applications:**

Coatings: surface tolerant/marine/high solids/coal tar/  
concrete

Flooring

Tooling

Low temp cures



**CIBA-GEIGY CORP.: Diluents:**

**RD-1:**

Viscosity @ RT, cP: 1-5  
W.P.E. (EEW): 130-149  
Color (Gardner) Max.: 2  
Butyl glycidyl ether - mono functional epoxy.

**RD-2:**

Viscosity @ RT, cP: 15-24  
W.P.E. (EEW): 125-140  
Color (Gardner) Max.: 1  
1,4 butanediol diglycidyl ether - di functional epoxy--versus  
RD-1--gives higher flashpoint (280F vs 120F); higher boiling  
(260C vs. 170C) faint odor, less efficient viscosity  
reduction.

**DY 023:**

Viscosity @ RT, cP: 5-15  
W.P.E. (EEW): 175-192  
Color (Gardner) Max.: 4  
Cresyl glycidyl ether - mono functional epoxy - less  
volatile and better resistance to water than RD-1.

**DY 025:**

Viscosity @ RT, cP: 5-15  
W.P.E. (EEW): 280-315  
Color (Gardner) Max.: 1  
Aliphatic glycidyl ether consisting primarily of C12 and  
C14 alkyl groups. Monofunctional. Efficient viscosity and  
surface tension reducer. FDA listed for coatings in contact  
with dry bulk foods.

**DY 027:**

Viscosity @ RT, cP: 5-15  
W.P.E. (EEW): 215-235  
Color (Gardner) Max.: 1  
Monofunctional. Alkyl glycidyl ether - alkyl groups are  
predominantly C8 and C10. Very effective viscosity reducer.

**CIBA-GEIGY CORP.: Matting Agents:**

**DT 3329:**

Description: Matting Agent

Softening Point C: 113

Solid, deglossing agent for epoxy/polyester hybrid, TGIC-polyester and polyester/urethane powder coatings.

**XG 125:**

Description: Matting Agent

Softening Point C: 122

Solid, deglossing agent for epoxy/polyester hybrid. TGIC-polyester and polyester/urethane powder coatings.

**CVC SPECIALTY CHEMICALS, INC.: Resin Modifiers:**

**ERISYS GE-6:**

Ethyl Hexyl Glycidyl Ether

Excellent replacement for BGE as a low viscosity reactive diluent

**ERISYS GE-7:**

C8-C10 Aliphatic Glycidyl Ether

Natural alcohol based equivalent to Epoxide 7 for high solids coatings, tooling applications and civil engineering

**ERISYS GE-8:**

C12-C14 Aliphatic Glycidyl Ether

Natural alcohol based equivalent to Epoxide 8 used for flooring, aggregate bonding and general adhesives

**ERISYS GE-10:**

O-Cresyl Glycidyl Ether

Viscosity modifier for construction, flooring and casting. Excellent moisture tolerance.

**ERISYS GE-20:**

Neopentyl Glycol Diglycidyl Ether

Aliphatic difunctional modifier for filament winding, electrical and high solids coatings

**ERISYS GE-21:**

1,4 Butanediol Diglycidyl Ether

Aliphatic difunctional modifier for improved flexibility over GE-20 at comparable viscosity

**ERSIYS GE-22:**

Cyclohexanedimethanol Diglycidyl Ether

Cycloaliphatic difunctional modifier with outstanding weatherability. Excellent for grouts and adhesives.

ERSIYS is a registered trademark of CVC Specialty Chemicals, Inc.

**B.F. GOODRICH: Reactive Liquid Polymers:****HYCAR Carboxyl Terminated Butadiene and Butadiene-Acrylonitrile Polymers:**

These polymers undergo addition esterification reactions with epoxy resins making them convenient modifiers. Rubber (CTBN) enhances impact strength, thermal shock properties, peel strength, low temperature shear strength and crack resistance of epoxy compositions. Many epoxy applications benefit from elastomer modified epoxy resins including:

- \* Aerospace and Automotive Adhesives
- \* Composites
- \* Coatings (Solution, Powder, Waterborne)

HYCAR CT polymers also serve as polymeric intermediates for:

- \* Corrosion Resistant Vinyl Esters
- \* Acrylated Epoxies useful in Radiation Curing
- \* Photopolymer Printing Plates

**2000X162 CTB:**

Acrylonitrile Content, %: 0

Carboxyl Content:

Acid Number: 25

EPHR: 0.045

Brookfield Viscosity mPas-s or cP @ 27C (81F): 60,000

**1300X31 CTBN:**

Acrylonitrile Content, %: 10

Carboxyl Content:

Acid Number: 28

EPHR: 0.050

Brookfield Viscosity mPa-s or cP @ 27C (81F): 60,000

**1300X8 CTBN:**

Acrylonitrile Content, %: 18

Carboxyl Content:

Acid Number: 29

EPHR: 0.052

Brookfield Viscosity MPa-s or cP @ 27C (81F): 135,000

**1300X13 CTBN:**

Acrylonitrile Content, %: 26

Carboxyl Content:

Acid Number: 32

EPHR: 0.057

Brookfield Viscosity MPa-s or cP @ 27C (81F): 500,000

**1300X9 CTBNX:**

Acrylonitrile Content, %: 18

Carboxyl Content:

Acid Number: 38

EPHR: 0.067

Brookfield Viscosity MPa-s or cP @ 27C (81F): 160,000

**1300X18 CTBNX:**

Acrylonitrile Content, %: 21.5

Carboxyl Content: Acid Number: 39/EPHR: 0.070

Brookfield Viscosity MPa-s or cP @ 27C (81F): 350,000



**B.F. GOODRICH: Reactive Liquid Polymers (Continued):**

**HYCAR Amine Terminated Butadiene-Acrylonitrile Polymers:**

HYCAR ATBN polymers are achieved by reacting select amines with CTBN-RLP. Several ATBN types (HYCAR 1300X16, 1300X21, 1300X35) contain secondary amine functionality whereas HYCAR 1300X42 is a primary amine terminated nitrile elastomer.

All ATBN polymers contain free unreacted amine in addition to the amine end group structure on the polymer. Free amine concentration varies from approximately 1.5% by weight in HYCAR 1300X21 to 10.0% by weight in HYCAR 1300X42. HYCAR ATBN finds use in:

- \* Epoxy Adhesives
- \* Solvent Free Epoxy Coatings
- \* Epoxy Flooring Systems
- \* Fiberglass Reinforced Epoxy Compositions
- \* Moisture Resistant Membranes

**1300X21 ATBN:**

Acrylonitrile Content, %: 10  
Amine Equivalent Weight: 1,200  
Amine Value: 47  
Brookfield Viscosity, mPa-s or cP, @ 27C (81F): 180,000  
Specific Gravity, 25/25C (77F): 0.938  
Glass Transition Temperature, Tg, C: -65

**1300X16 ATBN:**

Acrylonitrile Content, %: 18  
Amine Equivalent Weight: 900  
Amine Value: 62  
Brookfield Viscosity, mPa-s or cP, @ 27C (81F): 200,000  
Specific Gravity, 25/25C (77F): 0.956  
Glass Transition Temperature, Tg, C: -51

**1300X35 ATBN:**

Acrylonitrile Content, %: 26  
Amine Equivalent Weight: 700  
Amine Value: 80  
Brookfield Viscosity, mPa-s or cP, @ 27C (81F): 500,000  
Specific Gravity, 25/25C (77F): 0.978  
Glass Transition Temperature, Tg, C: -38

**1300X42 ATBN:**

Acrylonitrile Content, %: 18  
Amine Equivalent Weight: 450  
Amine Value: 125  
Brookfield Viscosity, mPa-s or cP, @ 27C (81F): 100,000  
Specific Gravity, 25/25C (77F): 0.942  
Glass Transition Temperature, Tg, C: -59

**B.F. GOODRICH: Reactive Liquid Polymers (Continued):****HYCAR Methacrylate Vinyl Terminated Butadiene-Acrylonitrile Polymers:**

HYCAR VT polymers are derived from CT-RLP through the reaction of the acid of CTBN with the epoxide in glycidyl methacrylate. Methacrylate functionality provides a site for free radical curing mechanisms. Unsaturated polyesters and vinyl esters (epoxy methacrylates) are typical of resins which can be free radical cured. VTBNX polymers toughen such resins by increasing fracture surface energy.

Other modifier uses include:

- \* PVC (polyvinyl chloride) plastisols where rubber imparts a degree of pseudo-elasticity
- \* Radiation curable adhesives where rubber enhances peel and low temperature shear strength.

**1300X33 VTBNX:**

Brookfield Viscosity, mPa-s or cP, 27C (81F): 250,000

Acid Number: 5 (max)

Specific Gravity, 25/25C (77F): 0.967

Solubility Parameter: 8.898

Glass Transition Temperature, Tg, C: -49

**1300X43 VTBNX:**

Brookfield Viscosity, mPa-s or cP, 27C (81F): 425,000

Acid Number: 5 (max)

Specific Gravity, 25/25C (77F): 0.981

Solubility Parameter: 9.091

Glass Transition Temperature, Tg, C: -45

**HYCAR Epoxy Terminated Butadiene-Acrylonitrile Polymer:**

HYCAR ETBN 1300X40 is an epoxy terminated nitrile elastomer diluted with styrene. It is designed to function as an elastomeric modifier for unsaturated polyester of the bulk molding compound (BMC) and sheet molding compound (SMC) varieties. Additionally, HYCAR ETBN 1300X40 upgrades the performance of existing, tough vinyl esters.

Brookfield Viscosity, mPa-s or cP, 25C (77F): 1,450

Total Solids, %: 50

Acid Number: 1.5 (max)

Specific Gravity, 25/25C (77F): 0.945

**LARAND CHEMICAL CORP.: LAR-908 Non-Reactive Diluent for Epoxy Resins:**

LAR-908 is a high-boiling aromatic diluent with alkyl side chains longer than methyl.

**Physical Effect:**

LAR-908 has been proven compatible up to 40-50 PHR with epoxy resins in unfilled compounds. It gives hard, dry, tack-free films that show good adhesion to metal surfaces. As flexibilizers, however, they do slightly lower hardness and modulus of rupture. The heat distortion temperature of epoxies is lowered in proportion to the amount of non-reactive diluent used.

**Electrical Effect:**

LAR-908 does not detract from, and in many cases improve, the electrical properties of amine-cured compositions, and the cured, modified resins are clear even in relatively thick castings.

**Chemical Effect:**

The use of LAR-908 as a diluent improves the resistance of epoxy coatings to dilute acids (particularly acetic acid) and bases, and to acetone. LAR-908 also improves the water resistance of epoxy coatings.

Gel time, or pot life, of epoxy formulations is extended with LAR-908 sometimes as much as five fold (with the more reactive room-temperature curing agents).

LAR-908 is a proven modifier for epoxy compounds. It lowers cost and at the same time improves many properties. LAR-908 can be used in a diversity of applications, including road surfacing, terrazzo flooring, coatings, encapsulation and adhesives.

**Typical Properties:**

Specific Gravity, 60F: 1.046  
Flash Point, COC, F: 325  
Pour Point, F: -30  
Color, ASTM: 1  
SUS Viscosity @ 100F: 50  
Mixed Aniline Cloud Pt., F: 64  
Total Aromatics: 99.1

**PACIFIC ANCHOR CHEMICAL CORP.: Reactive Diluents:****EPODIL 741 Reactive Diluent:**

A technical grade of butyl glycidyl ether. It is a monofunctional reactive diluent.

EEW: 145-155

**EPODIL 742 Reactive Diluent:**

Cresyl glycidyl ether (CGE). It is a monofunctional reactive diluent.

EEW: 170-195

**EPODIL 743 Reactive Diluent:**

A technical grade of phenyl glycidyl ether (PGE). It is a monofunctional aromatic reactive diluent.

EEW: 155-170

**EPODIL 745 Reactive Diluent:**

A technical grade of p-tert butyl phenyl glycidyl ether (TBPGE). It is a monofunctional reactive diluent.

EEW: 225-245

**EPODIL 746 Reactive Diluent:**

An aliphatic glycidyl ether, specifically 2-ethyl hexyl glycidyl ether (EHGE). It is a monofunctional reactive diluent.

EEW: 215-230

**EPODIL 747 Reactive Diluent:**

An aliphatic glycidyl ether. It is a monofunctional reactive diluent.

EEW: 220-235

**EPODIL 748 Reactive Diluent:**

An aliphatic glycidyl ether. It is a monofunctional reactive diluent.

EEW: 275-300

**EPODIL 749 Reactive Diluent:**

A di-functional reactive diluent based on neopentyl glycol.

EEW: 130-145

**EPODIL 750 Reactive Diluent:**

A technical grade of diglycidyl ether of 1,4-butanediol.

EEW: 120-140

**EPODIL 757 Reactive Diluent:**

A technical grade of the diglycidyl ether of cyclohexane dimethanol. It is a cycloaliphatic difunctional reactive diluent.

EEW: 158-168

**EPODIL 759 Reactive Diluent:**

An aliphatic glycidyl ether made from a mixture of C12 and C13 alcohols. It is a monofunctional reactive diluent.

EEW: 275-295

**EPODIL 769 Reactive Diluent:**

A technical grade of resorcinol diglycidyl ether. It is a difunctional reactive diluent.

EEW: 120-135

**PACIFIC ANCHOR CHEMICAL CORP.: Resins and Flexibilizers:**

**ANTHIOL R 12 Resin:**

ANTHIOL R 12 resin is a polysulfide-backboned, epoxy-terminated resin with a low, non-mercaptan odor.

Appearance: Amber Liquid  
Color (Gardner): 3  
Viscosity @ 77F, poise: 260  
Density (lbs/gal): @ 77F: 9.8  
Epoxy Equivalent Weight: 320  
Flash Pt. (closed cup), F: 313  
Recommended Use Level, phr: 100

**EPODIL L Diluent:**

EPODIL L diluent is a low molecular weight, liquid, aromatic hydrocarbon additive and extender for epoxy resin systems.

Appearance: Amber Liquid  
Color (Gardner): 6  
Viscosity @ 77F, poise: 0.9  
Specific Gravity @ 77F: 1.04  
Density (lb/gal) @ 77F: 8.6  
Flash Pt. (closed cup), F: 262  
Recommended Use Level, phr: 5-25

**Epoxy Modifier ML:**

Epoxy Modifier ML consists of mixed methyl esters of selected fatty acids, the predominant component being methyl linoleate (ML).

Appearance: Amber Liquid  
Color (Gardner): 8  
Viscosity @ 77F, cps: 10  
Density (lb/gal) @ 77F: 7.4  
Recommended Use Level, phr: 5-25

**REICHOLD CHEMICALS, INC.: EPOTUF Epoxy Reactive Diluents:**

37-051:

Epoxide Equivalent Weight: 620-680  
Viscosity Brookfield, cps @ 25C (77F): 200-300  
Lbs./Gal.: 8.5  
Type: Multifunctional epoxide  
Comments: Toughness & flexibility

37-052:

Epoxide Equivalent Weight: 135-155  
Viscosity Brookfield, cps @ 25C (77F): 2-5  
Lbs./Gal.: 7.6  
Type: Aliphatic monoepoxide  
Comments: Butyl glycidyl ether

37-053:

Epoxide Equivalent Weight: 170-195  
Viscosity Brookfield, cps @ 25C (77F): 5-25  
Lbs./Gal.: 9.0  
Type: Aromatic monoepoxide  
Comments: Cresyl glycidyl ether

37-054:

Epoxide Equivalent Weight: 135-146  
Viscosity Brookfield, cps @ 25C (77F): 10-20  
Lbs./Gal.: 9.0  
Type: Aromatic diepoxide  
Comments: Neopentyl glycol based

37-057:

Epoxide Equivalent Weight: 220-235  
Viscosity Brookfield, cps @ 25C (77F): 3-7  
Lbs./Gal.: 7.5  
Type: Aliphatic monoepoxide  
Comments: C8-C10 glycidyl ether

37-058:

Epoxide Equivalent Weight: 275-310  
Viscosity Brookfield, cps @ 25C (77F): 5-20  
Lbs./Gal.: 7.4  
Type: Aliphatic monoepoxide  
Comments: C12-C14 glycidyl ether

**RHONE POULENC, INC.: HELOXY Epoxy Resin Modifiers:**

- 7:  
Description: Alkyl C8-C10 glycidyl ether  
Viscosity at 25C, cps: 4  
Weight/Epoxide: 230  
Pounds/Gallon: 7.6  
Color Gardner (maximum): 1
- 8:  
Description: Alkyl C12-C14 glycidyl ether  
Viscosity at 25C, cps: 8  
Weight/Epoxide: 290  
Pounds/Gallon: 7.5  
Color Gardner (maximum): 1
- 9:  
Description: Alkyl C12-C13 glycidyl ether  
Viscosity at 25C, cps: 8  
Weight/Epoxide: 285  
Pounds/Gallon: 7.5  
Color Gardner (maximum): 1
- 61:  
Description: Butyl glycidyl ether  
Viscosity at 25C, cps: 1  
Weight/Epoxide: 150  
Pounds/Gallon: 7.7  
Color Gardner (maximum): 1
- 62:  
Description: Cresyl glycidyl ether  
Viscosity at 25C, cps: 7  
Weight/Epoxide: 185  
Pounds/Gallon: 9.0  
Color Gardner (maximum): 2
- 63:  
Description: Phenyl glycidyl ether  
Viscosity at 25C, cps: 5  
Weight/Epoxide: 160  
Pounds/Gallon: 9.2  
Color Gardner (maximum): 2
- 64:  
Description: Nonylphenyl glycidyl ether  
Viscosity at 25C, cps: 120  
Weight/Epoxide: 312  
Pounds/Gallon: 8.2  
Color Gardner (maximum): 2

**RHONE-POULENC, INC.: HELOXY Epoxy Resin Modifiers (Continued):**

- 65:  
Description: p-tert-Butylphenyl glycidyl ether  
Viscosity at 25C, cps: 25  
Weight/Epoxy: 232  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 1
- 67:  
Description: 1,4-Butanediol diglycidyl ether  
Viscosity at 25C, cps: 16  
Weight/Epoxy: 127  
Pounds/Gallon: 9.2  
Color Gardner (maximum): 1
- 68:  
Description: Neopentyl glycol diglycidyl ether  
Viscosity at 25C, cps: 16  
Weight/Epoxy: 135  
Pounds/Gallon: 8.9  
Color Gardner (maximum): 1
- 69:  
Description: Resorcinol diglycidyl ether  
Viscosity at 25C, cps: 400  
Weight/Epoxy: 127  
Pounds/Gallon: 10.1  
Color Gardner (maximum): 3
- 84:  
Description: Polyglycidyl ether of an aliphatic polyol  
Viscosity at 25C, cps: 250  
Weight/Epoxy: 650  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 1
- 107:  
Description: Cyclohexane dimethanol diglycidyl ether  
Viscosity at 25C, cps: 65  
Weight/Epoxy: 160  
Pounds/Gallon: 9.1  
Color Gardner (maximum): 1
- 116:  
Description: 2-Ethylhexyl glycidyl ether  
Viscosity at 25C, cps: 3  
Weight/Epoxy: 220  
Pounds/Gallon: 7.6  
Color Gardner (maximum): 1



**RHONE-POULENC, INC.: HELOXY Epoxy Resin Modifiers (Continued):**

502:

Description: Polyglycol diepoxide  
Viscosity at 25C, cps: 67  
Weight/Epoxide: 307  
Pounds/Gallon: 8.9  
Color Gardner (maximum): 2

505:

Description: Polyglycidyl ether of castor oil  
Viscosity at 25C, cps: 400  
Weight/Epoxide: 600  
Pounds/Gallon: 8.5  
Color Gardner (maximum): 8

5044:

Description: Trimethylolethane triglycidyl ether  
Viscosity at 25C, cps: 265  
Weight/Epoxide: 165  
Pounds/Gallon: 9.9  
Color Gardner (maximum): 4

5048:

Description: Trimethylolpropane triglycidyl ether  
Viscosity at 25C, cps: 190  
Weight/Epoxide: 155  
Pounds/Gallon: 9.6  
Color Gardner (maximum): 3

5063:

Description: Dibromoneopentyl glycol diglycidyl ether  
Viscosity at 25C, cps: 385  
Weight/Epoxide: 275  
Pounds/Gallon: 12.4  
Color Gardner (maximum): 5

**UNION CARBIDE CHEMICALS AND PLASTICS CO., INC.: Cycloaliphatic Epoxide Systems:**

**ERL-4211:**

Is a general-purpose cycloaliphatic diepoxide used principally with polyacid and anhydride cures. In particular, it provides good electrical loss properties, good weathering, and high heat distortion temperature.

**ERL-4221E:**

Is a low-ionic content version of ERL-4221, recommended for use in electronic applications.

**ERL-4299:**

Is similar in electrical and weathering performance to ERL-4221, but provides better flexibility.

**ERL-4234:**

Is a higher viscosity resin, featuring the highest heat distortion temperature of the series.

**ERL-4206:**

Is a low-viscosity diepoxide that can be cured with either amines or anhydrides and is useful as a reactive diluent for glycidyl ether epoxides for high-performance structural applications.

**Vinylcyclohexene Monoxide:**

Reactive through its vinyl or epoxide functionality, is useful as a chemical intermediate. It also serves as a reactive diluent where high crosslink density is not critical.

**NIAX LHT-240:**

Is a liquid triol that provides room temperature liquid systems with cycloaliphatic epoxides. These clear, unfilled systems find use in light-emitting diodes, or wherever see-through is required. LHT-240 is also used in conjunction with other modifiers to control two-phase system morphology in high-performance, highly-filled formulations.

**NIAX LHT-34:**

Is a high-molecular-weight triol that also provides a liquid system with cycloaliphatic epoxides. This modifier generally produces opaque castings of very high heat-distortion temperature and improved toughness, compared to LHT-240. The major importance of these systems, either filled or unfilled, is in providing the most desirable balance of mechanical and electrical properties.

**TONE Polyol 0230:**

Is a solid 1250 molecular weight caprolactone diol useful in improving the thermal shock resistance of ERL-4221 in systems having heat-distortion requirements below 100C.

**UNION CARBIDE CHEMICALS AND PLASTICS CO., INC.: Cycloaliphatic Epoxide Systems (Continued):**

**ERL-4221:**

3,4-Epoxy-cyclohexylmethyl-3,4-Epoxy-cyclohexane carboxylate  
Applications: General-purpose casting resin. Filament winding.  
Acid scavenger. Plasticizer.  
Viscosity, cP: 350 to 450 (25C)  
Apparent Specific Gravity at 25/25: 1.175  
Color, 1933 Gardner, max: 1  
Epoxy Equivalent Weight: 131 to 143  
Boiling Point at 760 mm Hg, C: 354  
Vapor Pressure at 20C, mm HG: <0.1  
Freezing Point, C: -20

**ERL-4206:**

Vinyl Cyclohexene Dioxide  
Applications: Used mostly as a reactive diluent. Hardens  
with either amines or anhydrides. Crosslinker.  
Viscosity, cP: <15 (25C)  
Apparent Specific Gravity at 25/25: 1.08 to 1.10  
Color, 1933 Gardner, max: 1  
Epoxy Equivalent Weight: 70 to 74  
Boiling Point at 760 mm Hg, C: 227  
Vapor Pressure at 20C, mm Hg: 0.1  
Freezing Point, C: -20

**ERL-4234:**

2-(3,4-Epoxy-cyclohexyl-5,5-spiro-3,4-epoxy) cyclohexane-  
meta-dioxane  
Applications: High viscosity, high heat-distortion tempera-  
ture resin for electrical application.  
Viscosity, cP: 7,000 to 17,000 (38C)  
Apparent Specific Gravity at 25/25C: 1.18  
Color, 1933 Gardner, max: 2  
Epoxy Equivalent Weight: 133 to 154  
Boiling Point at 760 mm Hg, C: >250  
Vapor Pressure at 20C, mm Hg: <0.01  
Freezing Point, C: <0

**ERL-4299:**

Bis (3,4-Epoxy-cyclohexyl) Adipate  
Applications: For flexibilized products of 100C HDT, or less.  
Viscosity, cP: 550 to 750 (25C)  
Apparent Specific Gravity at 25/25C: 1.15  
Color, 1933 Gardner, max.: 1  
Epoxy Equivalent Weight: 190 to 210  
Boiling Point at 760 mm Hg, C: 258 (10 mm)  
Freezing Point, C: 9

**Vinylcyclohexene Monoxide:**

1,2 epoxy-p-vinylcyclohexene - M.W 124  
Applications: Chemical intermediate; reactive diluent where  
high crosslink density is not critical  
Apparent Specific Gravity at 25/25C: 0.9598 (20/20C)  
Boiling Point at 760 mm Hg, C: 169  
Vapor Pressure at 20C, mm Hg: 2  
Freezing Point, C: <-100

**UNION CARBIDE CHEMICALS AND PLASTICS CO., INC.: Cycloaliphatic Epoxide Systems: Flexibilizers:****NIAX Polyol LHT-240:**

Chemical Name: Polypropylene Oxide Triol-M.W. 710  
Applications: Modifier for ERL-Series for clear systems,  
for critical electrical requirements.  
Viscosity, cP: 270 (25C)  
Apparent Specific Gravity at 25/25: 1.021  
Color, 1933 Gardner, max: 1  
Hydroxyl Number = 237.5  
Vapor Pressure at 20C, mm Hg: <0.1  
Freezing Point, C: <-25  
Solubility in Water at 25C, % by wt: <0.1

**NIAX Polyol LHT-34:**

Chemical Name: Polypropylene Oxide Triol-M.W. 5000  
Applications: Modifier for ERL-Series for high-HDT and  
thermal-shock resistance for moderate elect-  
rical requirements.  
Viscosity, cP: 950 (25C)  
Apparent Specific Gravity at 25/25: 1.006  
Color, 1933 Gardner, max: 1  
Hydroxyl Number = 33.8  
Vapor Pressure at 20C, mm Hg: <0.1  
Freezing Point, C: <-25  
Solubility in Water at 25C, % by wt: <0.1

**TONE Polyol 0230:**

Chemical Name: Caprolactone Diol-M.W. 1250  
Applications: Modifier for ERL-Series in systems with HDT  
requirements below 100C.  
Viscosity, cP: 284 (55C)  
Apparent Specific Gravity at 25/25: 1.071 (55/20C)  
Hydroxyl Number = 90

# **Suppliers' Addresses**

Ablestik  
20021 Susanna Road  
Rancho Dominguez, CA 90221  
(213)-764-4600

Acme Chemicals & Insulation Co.  
Allied Products Corp.  
P.O. Box 1404  
New Haven, CT 06505  
(203)-562-2171

A.I. Technology, Inc.  
1425 Lower Ferry Rd.  
Trenton, NJ 08618  
(609)-882-2332

Ajinomoto Co., Inc.  
Glenpointe Center West  
500 Frank W. Burr Blvd.  
Teaneck, NJ 07666  
(201)-488-1212

Anhydrides and Chemicals Inc.  
7-33 Amsterdam St.  
Newark, NJ 07105  
(201)-465-0077

Atlas Minerals & Chemicals  
Farmington Road  
Mertztown, PA 19539  
(215)-682-7171

Bacon Industries Inc.  
192 Pleasant St.  
Watertown, MA 02172  
(617)-926-2550

BASF Corp.  
100 Cherry Hill Rd.  
Parsippany, NJ 07054  
(201)-316-3000/(800)-526-1072

Biwax Corp.  
45 E. Bradrock Drive  
Des Plaines, IL 60018  
(708)-824-0137

Buffalo Color Corp.  
959 Route 46 East/Suite 403  
Parsippany, NJ 07054  
(201)-316-5600/(800)-631-0171

Cardolite Corp.  
500 Doremus Ave.  
Newark, NJ 07105  
(201)-344-5015

Castall, Inc.  
Weymouth Industrial Park  
East Weymouth, MA 02189  
(617)-337-6075

Ciba-Geigy Corp.  
Additives Division  
Seven Skyline Dr.  
Hawthorne, NY 10532  
(914)-785-2000/(800)-431-1900

Ciba-Geigy Corp.  
Plastics Div.  
Seven Skyline Dr.  
Hawthorne, NY 10532  
(914)-347-6600/(800)-922-1906

Coatings/Composites  
10105 Doty Ave.  
Inglewood, CA 90303  
(213)-671-8666/(800)-421-5418

Conap, Inc.  
1405 Buffalo St.  
Olean, NY 14760  
(716)-372-9650

Cosmic Plastics, Inc.  
12314 Gladstone Ave.  
San Fernando, CA 91342  
(818)-365-3249/(800)-423-5613

Cray Valley Products Inc.  
Box 247A  
Stuyvesant, NY 12173  
(518)-828-4383

CVC Specialty Chemicals, Inc.  
600 Deer Road  
Cherry Hill, NJ 08034  
(609)-354-0040

John C. Dolph Co.  
P.O. Box 267  
Monmouth Junction, NJ 08852  
(908)-329-2333

Dow Chemical U.S.A.  
Midland, MI 48674  
(800)-441-4369

Eastern Resins and Chemicals  
1174 River St.  
Woonsocket, RI 02895  
(401)-728-8880

Emerson & Cuming, Inc.  
77 Dragon Court  
Woburn, MA 01888  
(617)-938-8630/(800)-TECHWAY

Epic Resins  
1421 Ellis St.  
Waukesha, WI 53186  
(414)-521-2255/(800)-242-6649

Fel-Pro Inc.  
6120 East 65 58th Ave.  
Commerce City, CO 80022  
(303)-289-5651/(800)-992-9799

Fiber-Resin Corp.  
P.O. Box 4187  
170 W. Providencia Ave.  
Burbank, CA 91503  
(800)-624-9487

Fibre Glast Developments Corp.  
1944 Neva Drive  
Dayton, OH 45414  
(513)-274-1159/(800)-821-3283

Formulated Resins Inc.  
P.O. Box 508  
Greenville, RI 02828  
(401)-949-2060/(800)-331-1358

B.F. Goodrich  
Specialty Polymers & Chemicals  
9911 Brecksville Road  
Cleveland, OH 44141  
(216)-447-5000/(800)-331-1144

Hardman Inc.  
600 Cortlandt St.  
Belleville, NJ 07109  
(201)-751-3000

Hastings Plastics Co.  
1704 Colorado Ave.  
Santa Monica, CA 90404  
213)-829-3449

Henkel Polymers Division  
5325 So. Ninth Ave.  
LaGrange, IL 60525  
(708)-579-6150/(800)-543-7370

Hexcel Resins Group  
4505 Las Virgenes Rd.  
Suite 206  
Calabas, CA 91302  
(818)-880-8708

Hoechst Celanese Corp.  
Bldg. 5200  
77 Center Drive  
P.O. Box 1026  
Charlotte, NC 28201  
(800)-242-6222

Huls America Inc.  
80 Centennial Ave.  
P.O. Box 456  
Piscataway, NJ 08855  
(908)-980-6929/(800)-526-0339

The Humphrey Chemical Co. Inc  
Devine St.  
North Haven, CT 06473  
(203)-281-0012/(800)-652-3456

Insulcast Div.  
Permagile Industries Inc.  
101 Commercial St.  
Plainview, NY 11803  
(516)-349-1100/(800)-645-7546

ITW Devcon  
30 Endicott St.  
Danvers, MA 01923  
(800)-933-8266

K-POXY  
225 Riverview Ave.  
Waltham, MA 02254  
(617)-647-5560

Larand Chemical Corp.  
P.O. Box 246  
Hawley, PA 18428  
(717)-226-6413/(800)-833-3038

Leepoxy Plastics, Inc.  
3324 Ferguson Rd.  
Fort Wayne, IN 46809  
(219)-747-7411

Lindau Chemicals Inc.  
P.O. Box 13565  
Columbia, SC 29201  
(803)-799-6863

Loctite Corp.  
4450 Cranwood Parkway  
Cleveland, OH 44128  
(216)-475-3600/(800)-321-9188

Magnolia Plastics, Inc.  
5547 Peachtree Industrial Blvd.  
Chamblee, GA 30341  
(404)-451-2777

Mereco Division  
Metachem Resins Corp.  
1505 Main St.  
W. Warwick, RI 02893  
(401)-828-4550/(800)-556-7164

Milliken Chemicals  
P.O. Box 1927  
M-400  
Spartanburg, SC 29304  
(803)-573-2200

Monomer-Polymer & Dajac  
Laboratories  
3993 Huntingdon Ave.  
Huntingdon Plaza-Suite 205  
Huntingdon Valley, PA 19006  
(215)-938-1750

Pacific Anchor Chemical Corp.  
5701 S. Eastern Ave.  
Suite 530  
Los Angeles, CA 90040  
(213)-725-1800/(800)-423-4391

Permagile Industries Inc.  
101 Commercial St.  
Plainview, NY 11803  
(516)-349-1100/(800)-645-7546

Plaskon Electronic Materials  
2829 Glendale Ave.  
Toledo, OH 43614  
(419)-389-5600/(800)-537-3350

PMC Specialties Group  
20525 Center Ridge Rd.  
Rocky River, OH 44116  
(216)-356-0700

Polychem Corp.  
20 Fifth Ave.  
Cranston, RI 02910  
(401)-461-0500

Products Research & Chemical  
5430 San Fernando Rd.  
Glendale, CA 91203  
(818)-240-2060/(800)-331-5865

Protective Coating Co.  
221 S. 3rd. St.  
Allentown, PA 18102  
(215)-432-3543

Quadrant Chemical Corp.  
200 Industrial Blvd.  
McKinney, TX 75069  
(212)-542-0072



Reichhold Chemicals, Inc.  
P.O. Box 13582  
Research Triangle Park,  
NC 27709  
(800)-874-5403

Rhone-Poulenc, Inc.  
9808 Bluegrass Parkway  
Louisville, KY 40229  
(502)-499-4011

Shell Chemical Co.  
320 Southwest Freeway  
Suite 1230  
Houston, TX 77027  
(713)-241-8818

Smooth-On, Inc.  
1000 Valley Road  
Gillette, NJ 07933  
(908)-647-5800

Sonneborn Building Products  
7711 Computer Ave.  
Minneapolis, MN 55435  
(800)-ChemRex

Sterling  
Nine Ohio River Blvd.  
Sewickley, PA 15143  
(412)-766-7600

Symplastics, Inc  
3718 Clifton Place  
Montrose, CA 91020  
(818)-249-7810

Synthron, Inc.  
P.O. Box 1111  
Morganton, NC 28655  
(704)-437-8611

Syon Corp.  
280 Eliot St.  
Ashland, MA 01721  
(508)-881-8852

TACC International Corp.  
Air Station Industrial Park  
P.O. Box 535  
Rockland, MA 02370  
(617)-878-7015

Thermoset Plastics, Inc.  
5101 East 65th St.  
P.O. Box 20902  
Indianapolis, IN 46220  
(317)-259-4161

3M Adhesives, Coatings and  
Sealers Division  
3M Center Bldg.  
St. Paul, MN 55144  
(612)-733-1110

Tra-Con, Inc.  
P.O. Box 306  
Medford, MA 02155  
(617)-391-5550

Union Camp Corp.  
1600 Valley Rd.  
Wayne, NJ 07470  
(201)-628-2000

Union Carbide Chemicals and  
Plastics Co., Inc.  
39 Old Ridgebury Rd.  
Danbury, CT 06817  
(203)-794-5300

United States Gypsum Co.  
101 S. Wacker Dr.  
Chicago, IL 60606  
(312)-606-4000/(800)-621-9523

Westinghouse Electric Corp.  
Chemical Products  
Manor, PA 15665  
(412)-864-7960

Zymet Inc.  
7 Great Meadows Lane  
E. Hanover, NJ 07936  
(201)-428-5245

# **Trade Name Index**

<b>Trade Name</b>	<b>Supplier</b>
ABLEBOND	Ablestik Laboratories
ABLEFILM	Ablestik Laboratories
ACME	Acme Chemicals & Insulation
AC-METHYL	Anhydrides and Chemicals
ACTIRON	Synthron
AJICURE	Ajinomoto
ALLABOND TWENTY/twenty	Bacon Industries
ALUMINUM VERY LIQUID	ITW Devcon
AMICON	Emerson & Cuming
AMICURE	Pacific Anchor Chemical
ANCADRIDE	Pacific Anchor Chemical
ANCAMIDE	Pacific Anchor Chemical
ANCAMINE	Pacific Anchor Chemical
ANCAREZ	Pacific Anchor Chemical
ANCHOR	Pacific Anchor Chemical
ANHYDRIDE	Pacific Anchor Chemical
ANQUAMINE	Pacific Anchor Chemical
ANTHIOL	Pacific Anchor Chemical
ANTI-SKID	ITW Devcon
AQUA ARMOR	Permagile Industries
ARALDITE	Ciba-Geigy
ARATRONIC	Ciba-Geigy
AR BARRIER	ITW Devcon
AROFLINT	Reichhold Chemicals
BECKOPOX	Hoechst Celanese
BITUPOX	Permagile Industries
BIWAX	Biwax
BOND	Permagile Industries
BRONZE PUTTY	ITW Devcon
BRUSHABLE CERAMIC	ITW Devcon
CARBIDE PUTTY	ITW Devcon
CARDOLITE	Cardolite
CARDURA	Shell Chemical
CASAMID	Pacific Anchor Chemical
CASTALL	Castall
CAT COAT	Permagile Industries
CONACURE	Conap
CONAPOXY	Conap
CONDUCTING TWENTY/twenty	Bacon Industries
CONDUCTOP	Coatings/Composites
CONDUCTPRIME	Coatings/Composites

**Trade Name**

CONDUCTSEAL  
 CONCRETE  
 CONOGLAZE  
 CONOQUARTZ  
 CONOWELD  
 CUREZOL  
 CURITHANE  
 CYCLO SOL

D.E.H.  
 D.E.R.  
 DEVCON  
 DICYANEX  
 DOLPHON  
 DOUBLE-BUBBLE  
 DOW  
 DUO-PAK  
 DURO  
 DUROXYN

EASTERN  
 ECCOBOND  
 ELECTROSOL  
 EMERSON & CUMING  
 EPALLOY  
 EPIC  
 EPIC-CAST  
 EPIC LAM  
 EPI-CURE  
 EPIPHEN  
 EPI-REZ  
 EPI-TEX  
 EPOCAP  
 EPODIL  
 EPOLITE  
 EPOLITH  
 EPON  
 EPONEX  
 EPONOL  
 EPOTUF  
 EPOXICAL  
 EPOXY COAT  
 EPOXY PLUS

**Supplier**

Coatings/Composites  
 Coatings/Composites  
 Coatings/Composites  
 Coatings/Composites  
 Coatings/Composites  
 Pacific Anchor Chemical  
 Dow Chemical  
 Shell Chemical

Dow Chemical  
 Dow Chemical  
 ITW Devon  
 Pacific Anchor Chemical  
 John C. Dolph  
 Hardman  
 Dow Chemical  
 3M  
 Loctite  
 Hoechst-Celanese

Eastern Resins and Chemicals  
 Emerson & Cuming  
 Alframine  
 Emerson & Cuming  
 CL Industries  
 Epic Resins  
 Epic Resins  
 Epic Resins  
 Rhone-Poulenc  
 Monomer-Polymer & Dajac  
 Rhone-Poulenc  
 Rhone-Poulenc  
 Hardman  
 Pacific Anchor Chemical  
 Hexel Resins  
 Sonneborn Building Products  
 Shell Chemical  
 Shell Chemical  
 Shell Chemical  
 Reichhold Chemicals  
 United States Gypsum  
 ITW Devcon  
 ITW Devcon

<b>Trade Name</b>	<b>Supplier</b>
EPOXY SEALER	ITW Devcon
ERCCO	Eastern Resins and Chemicals
ERISYS	CVC Specialty Chemicals
ERL	Union Carbide Chemicals and Plastics
E-SOLDER	Acme
EUREDUR	Sherex Chemical Co.
EVERFIX	Fibre Glast Evercoat
EVERSTAR	Fibre Glast Evercoat
FASMETAL	ITW Devcon
FIBERGEL	Fiber-Resin
FIBRECRETE	Coatings/Composites
5-MINUTE	ITW Devcon
FLOOR GRIP	ITW Devcon
FORM-A-TOOL	TACC International
GENAMID	Henkel Polymers
HAPEX	Hastings Plastics
HARD COAT	K-POXY
HELOXY	Rhone-Poulenc
HEXCEL	Hexcel Reisins Group
HYCAR	B.F. Goodrich
IMICURE	Pacific Anchor Chemical
INSULBOND	Permagile Industries
INSULCAST	Permagile Industries
INSULCURE	Permagile Industries
IRGACURE	Ciba-Geigy
JEWEL GLAZE	Polychem
KELPOXY	Reichhold Chemicals
K-POXY	K-POXY
LAROMIN	BASF
LCA	Bacon Industries
LEECURE	Leepoxy Plastics
LINDAX	Lindau Chemicals
LINDRIDE	Lindau Chemicals
LOCTITE	Loctite
MAGNOBOND	Magnolia Plastics

<b>Trade Name</b>	<b>Supplier</b>
MAGNO-CERAM	Magnolia Plastics
MAGNOLIA	Magnolia Plastics
MAGNOLOOP	Magnolia Plastics
MARASET	Acme Chemicals & Insulation
MASKAST	Hastings Plastics
MASTER MEND E-POX-E	Loctite
MATRIMID	Ciba-Geigy
MERECO	Mereco
METACAST	Mereco
METACHEM	Mereco
METACLAD	Mereco
METACOTE	Mereco
METACURE	Pacific Anchor Chemical
METADUCT	Mereco
META-GEL	Mereco
META-LINK	Mereco
METALSET	Smooth-On
METRE/GEL	Mereco
METREGRIIP	Mereco
METRE-SET	Mereco
MILLAMINE	Milliken Chemicals
MILLDRIDE	Milliken Chemicals
MILLIKEN	Milliken Chemicals
NADIC	Buffalo Color
NIAX	Union Carbide Chemicals and Plastics
ON COMMAND	Epic Resins
OXITOL	Shell Chemical
PACIFIC ANCHOR	Pacific Anchor Chemical
PERMAGILE	Permagile Industries
PERMATOP	Permagile Industries
PERM-INJECT	Permagile Industries
PLASKON	Plaskon Electronic Materials
PLAST	Fibre Glast Development
PLASTIC ARMOR	Permagile Industries
PLASTIC STEEL	ITW Devcon
PRC PERMAPOL	Products Research & Chemical
PROCAST	Fiber-Resin
PRONTO	3M
PROTECTOP	Coatings/Composites

<b>Trade Name</b>	<b>Supplier</b>
QUICKCURE	Cray Valley Products
RAE	Hexcel Resins Group
REZKLAD	Atlas Minerals & Chemicals
SAFE-T-GRIT	ITW Devcon
SCOTCH-WELD	3M
SEA GLASS	Fibre Glast Developments
SELF LEVELING	Coatings/Composites
SHELL	Shell Chemical
SHUR-LOK	Fiber-Resin
SMOOTH-ON	Smooth-On
SONITE	Smooth-On
SON-NO-MAR	Sonneborn Building Products
SONOBOND	Sonneborn Building Products
SONOCOAT	Sonneborn Building Products
SONOPLEX	Sonneborn Building Products
SONOPRIME	Sonneborn Building Products
STAINLESS STEEL PUTTY	ITW Devcon
STYCAST	Emerson & Cuming
SUPER-CERAM	Magnolia Plastics
SUPER INSTANT	Smooth-On
SURE SHOT 1-MINUTE EPOXY	ITW Devcon
SUR-WET	Pacific Anchor Chemical
THIXAST	Hastings Plastics
TONE	Union Carbide Chemicals and Plastics
TRA-BOND	Tra-Con
TRA-CAST	Tra-Con
TRA-DUCT	Tra-Con
TRU-BOND	Syon
TRU-CAST	Syon
2-TON EPOXY	ITW Devcon
UNI-REZ	Union Camp
UNISSET	Emerson & Cuming
UNIWELD	Permagile Industries
VEH	Hoechst-Celanese
VERSAMID	Henkel Polymers
VERSAMINE	Henkel Polymers
VESTAGON	Huls America
VESTAMIN	Huls America

**Trade Name**

**Supplier**

WESTINGHOUSE

Westinghouse Electric

YSE-CURE

Ajinomoto

Z-POXY

A.I. Technology

ZYMET

Zymet